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ABSTRACT

This synthesis of recent literature on school effectiveness offers educators empirical research on which to base plans for staff development and school improvement. The introduction notes the limitations of effective schools research and points out its potential to clarify thought about schools. A section on instruction reviews research on correlates and conditions of instructional effectiveness and the efficacy of such methods as direct instruction, programmed instruction, computer-assisted instruction, advance organizers, and questioning techniques. Research on factors influencing learning outcomes is reviewed in the following section, and methods and techniques including time-on-task, mastery learning, open education, and team teaching are considered. A chapter on implementation reviews research on the structure and dynamics of educational organizations, offers an overview of educational planned change research, discusses various change strategies and intervention tactics, and lists identified obstacles to planned change. The concluding chapter interprets the preceding reviews, defining school effectiveness as a multidimensional continuum and outlining the characteristics of effective schools. Specific indicators for each characteristic are provided and recommendations for successful planned change offered. (MJL)

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SCHOOL IMPROVEMENT

RESEARCH BASED COMPONENTS AND PROCESSES FOR EFFECTIVE SCHOOLS

Edited by
JOSEPH J. RAICHE

Published by
the EDUCATIONAL COOPERATIVE SERVICE UNIT
of the Metropolitan Twin Cities Area

In cooperation with
the MULTIDISTRICT CONSORTIUM for
LONG-RANGE PLANNING

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Selections written by
Scott Magnuson-Martinson
Patricia Mullaney

Published by
The Educational Cooperative Service Unit
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The Multidistrict Consortium for
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The project was initiated and guided by a subregional planning group of the Metro ECSU, the Multidistrict Consortium for Long-Range Planning (MCLP). The MCLP consists of sixteen school districts located within the Metropolitan Twin Cities Area of Minnesota:

Centennial
Columbia Heights
Forest Lake
Fridley
Hastings
Inver Grove Heights
Mahtomedi
Mounds View
North St. Paul-Maplewood-Oakdale
Roseville
St. Anthony-New Brighton
South Washington County
Spring Lake Park
Stillwater
White Bear Lake
Special District 916

The purpose of the Metro ECSU/MCLP project was to produce a compilation of recent research related to school effectiveness, instruction, learning, and planned change that would enable individuals planning staff development activities and school improvement programs to make decisions based on empirical research.

We are grateful to Joseph J. Raiche who coordinated compilation of this research, authored portions of this document, and served as editor of the manuscript. We are also very appreciative of the excellent work provided by the research analysts and chapter authors, Scott Magnuson-Martinson, Patricia Mullaney, and Pearl Barner.

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Gerald G. Mansergh, Executive Director
Educational Cooperative Service Unit
of the Metropolitan Twin Cities Area

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SECTION I: INTRODUCTION

by Joseph J. Raiche

The time has come for a more systematic and enlightened approach to educating our youth. Taxpayers are demanding it. Politicians are demanding it. College and university officials are demanding it. Special commissions and taskforces are demanding it. Employers are demanding it. Meanwhile, educational researchers and other social scientists are quietly, but persistently, churning out the vital information that can satisfy these demands (Walberg, Schiller, & Haertel, 1979). The fruits of this labor have commonly been referred to as the "school effectiveness" literature. This body of research has been accumulating since the early 1970's and is just about ready for harvest. In fact, there has already been a flurry of activity associated with this literature. Odden and Dougherty (1982) report that most states currently have or are attempting to implement a "school improvement" program.

The Research on Effective Schools

While acknowledging the "promise" of the work on effective schools, some researchers have expressed concern that the "movement" to improve schools based on these studies may be premature. Specifically, critics of the school effectiveness research see it as being limited in the following respects:

1. The validity of most measures of "school effectiveness" currently in use is questionable (Gray, 1981). Often, "school effectiveness" is conceived as achievement in basic skills (Rowan, Bossert, & Dwyer, 1983). This narrow conception ignores many other desired outcomes emphasized within schools (Goodlad, 1983; Madaus, Airasian, & Kellaghan, 1971; Purkey & Smith, 1982) and, in many cases, does not accurately reflect school practitioners' views of what is or is not "effective" (Rowan et al., 1983, p. 25). Measures of "school effectiveness" are further confounded by the fact that practitioners working in the same school, viewing the same results, have been found to express quite different accounts of what they have seen (McCarthy, Lazarus, & Canner, 1980).
2. While the methods being used to assess "school effectiveness" are becoming more sophisticated, most research designs being employed do not have the capacity to delineate temporal or causal relations between school variables (Rowan et al., 1983, p. 28). However, the ability to clarify the causal-ordering of variables becomes less important with increasing evidence of "mutual causation" among variables in the school setting (Entwistle & Hayduk, 1981; Grusky, 1963; Porter & Lawler, 1968). The complexity of school-level variables and processes makes it extremely difficult for researchers to specify the degree to which any given factor influences student learning.
3. The generalizability of findings produced by the "school effectiveness" research has also been questioned (e.g., Purkey & Smith, 1982; Rowan et al., 1983, p. 29). The contention is that the measurement and design problems which characterize these studies make it exceedingly unlikely that relationships exhibited by a given school, a particular type of school, or even a

heterogeneous sample of schools, will hold for all types of schools.

While there are obvious shortcomings in the growing school effectiveness research, we believe that our attempt to synthesize the literature will show that the research is not without considerable merit. To begin with, this collective research effort has stimulated a reexamination of earlier, highly publicized findings which argued rather persuasively that schools have little effect on student academic achievement (e.g., Coleman et al., 1966; Jencks et al., 1972). These studies asserted that variance in student achievement is largely attributable to social class. That is to say, socio-economic variables, not school variables, were thought to determine student learning outcomes.

The school effectiveness research, taken as a whole, is fairly convincing in its challenge to these conclusions. Numerous studies have identified tractable aspects of school organizations which affect learner outcomes (see e.g., Clark, Lotto, & McCarthy, 1980; Coleman, Hoffer, & Kilgore, 1981; Edmonds, 1979; Heyneman & Loxley, 1983; Rowan & Denk, 1982). Perhaps even more impressive is the mounting evidence that teachers and their management of the classroom setting play a critical role in student academic achievement and general development (see Mackenzie, 1983, p. 12, for a review). Moreover, tangential research, encouraged by findings such as these, has shown that the link between socio-economic status (SES) and academic achievement may not be as direct or strong as was once thought (White, 1980). Rather, recent evidence seems to indicate that the level of familial interest in, commitment to, and support of education is a better predictor of academic achievement in students (Fotheringham & Creal, 1980). Higher-SES parents have been found generally to emphasize and reinforce academic achievement more than do lower-SES parents. Hence, it appears that familial "support" acts as an intervening variable between achievement and SES.

Another important contribution of the school effectiveness research is that it views (and nurtures a view of) student learning and development as products of organizational processes. From this perspective, school organizations are seen as systems, comprised of interrelated elements, i.e., students, attitudes, classrooms, parents, policies, teachers, desks, administrators, etc., all of which contribute in some fashion to the composite "effect" of the school on student achievement. This orientation has produced such concepts as "school climate," "school culture," and "effective leadership" and has attempted to delineate what these phenomena consist of and how they influence instructional outcomes.

Perhaps the most attractive feature of the school effectiveness research, however, lies in its potential to clarify our thinking about schools. No previous research effort has offered such a comprehensive analysis of schooling and learning processes for consumption by educational practitioners. As we indicated earlier, it appears that many educators have already begun to take advantage of this opportunity. We agree with Goodlad's (1983, p. 9) observation that understanding schools is a vital first step on the long road to successfully improving them. (We will describe further steps in Section IV.)

Objectives, Procedures, and Limitations

The objectives we have for this book are fairly ambitious. Our intent is to synthesize and present the recent research related to school effectiveness in a manner which will allow educational practitioners and lay people to:

1. familiarize themselves (to the degree desirable) with "what is known" about

effective schools, effective teaching, effective learning, and effective planned change;

2. enter into informed discussions with other persons about the nature of effective schools and how school effectiveness might be achieved;
3. make (or contribute to) thoughtful, research-based policy decisions regarding school improvements.

For analytic purposes, the central research problem to be examined here, "school effectiveness," was divided among three research consultants. Scott Magnuson-Martinson, a social psychologist, was assigned the research literature dealing with teacher effectiveness, including that which clarifies how school-level variables influence classroom instruction. Magnuson-Martinson, working with Pearl Barner, a psychologist, also reviewed the research literature related to learning in the school setting. Magnuson-Martinson and Barner were responsible for recent research on the effect of school variables on student learning as well. Pat Mullaney, a sociologist, reviewed the research literature on organizational change. Her responsibility was to characterize school organizations, describe change processes in school organizations, and identify obstacles to planned change inherent in schools.

The collection of research information by the three consultants was relatively unstructured. That is to say, they were *not* given lists of topics on which to collect research. This flexibility was purposeful, in that the editor and project staff did not want to unnecessarily constrain the types of information that might be retrieved. The only limits placed on the research consultants were that 1) every attempt be made to build samples of research elements which reflect the current state of "what is known" in the areas covered; and 2) recent research (published from 1975 on) be emphasized.

The research synthesis presented in this publication is not definitive. We have attempted to treat each of the substantive areas as thoroughly and professionally as possible in order to maximize their utility for readers. Still, as is the case in any research endeavor, our presentation of the recent research on effective schools is limited by a variety of factors, not the least of which is the state of this body of research itself (described previously). Put briefly, we believe the research synthesis presented is representative of what is "out there." We are not quite sure that what is "out there" is representative of reality in school organizations. To a certain degree, readers will have to judge this for themselves.

Outline of the Book

The book is organized in terms of substantive areas. Section II, entitled "Instruction," examines the major contextual, intrapersonal, interpersonal, and methodological variables that influence classroom instruction. Section III is entitled "Learning Outcomes." This section focuses on the factors that contribute to and detract from student learning. Section IV, entitled "Implementing Change in Educational Organizations," characterizes the structure and dynamics of schools and discusses the complexity of planned change in these settings. This section concludes with a comprehensive analysis of planned change strategies and techniques. Section V is entitled "Toward More Effective Schools." This section represents an attempt to synthesize and interpret the findings presented in the previous three sections. In this section, tentative conclusions are drawn about what the research on school effectiveness, taken as a whole, implies for practitioners seeking to improve their schools.

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SECTION II: INSTRUCTION

by Scott Magnuson-Martinson

The basic objectives of American education have scarcely changed since the emergence of common (publicly funded) schools in the 1830's. Bruner (1971), elaborating on John Dewey's thought, defines these objectives as socialization for life and work through "disciplined understanding." He goes on to suggest that the "yeast of education is the idea of excellence" (p. 99).

The aspiration that excellence be the impetus of education in the United States is reflected in the scientific investigations of instruction that have abounded since the 1920's. Various authors have charted the progress of instructional research (Kyriacou & Newson, 1982; Murname, 1981; Purkey & Smith, 1982). The earliest explorations were rather simplistic in their focus on teachers as the sole instructional influence. Indeed, these early studies focused almost exclusively on the intrinsic characteristics of teachers in an attempt to isolate those associated with more effective instruction.

Gradually, the limitations of this approach were recognized and educational researchers shifted their primary focus away from the inherent attributes of teachers and toward the influence of classroom dynamics on the process of instruction. For the first time, consideration was given to the social and physical factors that impinge on teacher practices in the classroom. Examples included teacher-student interactions, classroom physical environment, and student spatial arrangements (Brophy, 1981; Good, 1981; Weinstein, 1979). This line of research proved to be illuminating, but still failed to account for the range of forces that play on instruction.

By about the middle 1960's, the classroom-centered model gave way to a more system-oriented analysis of instruction that looked at the impact of school organizations on educational achievement (Fordham, 1982). This perspective was exemplified in the seminal study by Coleman et al. (1966). Surprising to many, the principal conclusion of this research effort was that schools have only a minimal effect on instructional outcomes. Rather than school, classroom, or teacher variables determining student achievement, it was argued that students' socio-economic status (SES) best predicted their accomplishments in the school setting.

As one might imagine, the prospect that an intractable variable such as SES was the primary determinant of student educational outcomes had a demoralizing effect on the education community (Gray, 1981a; Heyneman & Loxley, 1983). This period of depression was short-lived, however, as researchers were skeptical of those results and busied themselves with a reexamination of the wide range of variables that had previously been identified as influencing instructional outcomes. Some of the most fruitful work was being done in the area of teacher effects. An intriguing analysis by Rosenthal and Jacobson (1968) proved to be the catalyst for a process-product model of teacher influence (Kyriacou & Newson, 1982; Medley, 1979). The process-product model concerned itself with how and the degree to which various processes associated with the classroom setting influence instructional products or outcomes.

The efforts of educational researchers in the late 1960's and early 1970's to deliver a more comprehensive analysis of the variables which influence instruc-

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tional outcomes represented a significant advance in our understanding of educational processes (Centra & Potter, 1980). These studies provided a conceptual and methodological base for a body of studies, commonly referred to as the "school effectiveness" research, which has been accumulating since 1975. Like the approaches which preceded it, the school effectiveness model seeks to identify those school- and teacher-related variables which have the greatest impact on instruction and, therefore, on student achievement. The intent of this section is to organize this massive, and sometimes unwieldy, research literature in a fashion that makes it more useful to educational practitioners.

The Nature of Instruction

There are numerous perspectives on instruction (see Snelbecker, 1974, for a review). A general definition of instruction revolves around the application of an intentional and deliberate family of logical acts aimed at promoting the learning of skills, knowledge, and values (Hyman, 1974). More specifically, Rothkopf (1981) delineates six factors that are inherent to instruction, although distinct teaching models may accomplish these differently (Joyce, 1978). These factors involve arranging activities so that learning is more likely to occur through: 1) providing a number of redundant instructive events; 2) inducing attendance to instruction; 3) insuring relevance of instructional material; 4) determining whether the learner has prerequisite experience; 5) facilitating learning disposition for processing and incorporation; and finally, 6) integrating material and situation for maximal memorization. As noted earlier, while philosophies and approaches differ, most teaching tends to be prescriptive and normative (Angin, 1982).

The present normative prescription for instruction, within the educational community and society in general, is for "effectiveness." While this concept can and does have disparate definitions that tend to coincide with the particular agenda of the user of the word, it has increasingly come to mean achievement in mathematics and reading as measured by objective instruments (Curran, 1982; Edwards, 1981; Porter, 1983; Powell, 1978; Rosenshine, 1978a; Rowan, Bossert, & Dwyer, 1983). The movement in this direction is not surprising considering the public outcry regarding the apparent decline in basic skills. Still, there is skepticism among a sizable cadre of educational researchers and practitioners regarding this rather narrow view of education. The principal argument is that the emerging orientation confuses educational effectiveness and educational excellence. Many educators see these as being quite distinct (Brandt, 1982). For example, a particular school or classroom teacher may be quite effective at facilitating student achievement of certain specified objectives, e.g., math and reading; it does not necessarily follow, however, that these achievements reflect educational excellence. The school or teacher in question may well be maximizing student achievement in the areas noted, but it is highly questionable whether such limited objectives are consistent with the broader educational aims that have traditionally characterized public education in the United States. As Angin (1982) notes, education is concerned with both the subject matter and general edification of the learner. Whereas, specification and attainment of discrete goals and objectives is more akin to mere training (Palmer, 1983).

Whatever the outcome used to measure effectiveness, this "product" (Kyriacou & Newson, 1982) is influenced by related variables such as "process" (i.e., instructional method and classroom interaction), "presage" (i.e., teacher personal characteristics), and "context" (i.e., school climate and social characteristics). While some (Hurewitz & Hurewitz, 1977) focus on process variables, suggesting that measurement of these is not as restricted and that they are often correlated with learning, it has been argued that careful consideration and measurement of all of the aforementioned are needed to accurately assess and define "instructional effectiveness" (Cooley, Leinhardt, & McGrail, 1977). Furthermore, it seems necessary to consider both classrooms and individual learners as units of process-product analysis in order to appropriately measure "teacher effectiveness" (Soar, 1978). However, Hyman (1974) cautions that it is not valid to evaluate effectiveness solely on the basis of achievement, especially if the intent of the instruction is not reflected in this. This caveat is repeated by Reyes (1982).

In conclusion, it would seem that effective instruction is that which does a better job of attaining the goals and objectives that are held for a particular type of instruction. Obviously what is needed, in order to define and evaluate effectiveness in any particular situation, is some sort of consensus among the individuals involved as to what constitutes the objectives of the instruction. Different goals and activities demand different teaching methods (Edwards, 1981; Rosenshine, 1978a).

Correlates and Conditions of Instructional Effectiveness

Information in this subsection includes all of the presage, process, product, and context variables discussed earlier. However, they will not necessarily be couched in that terminology.

Contextual Influences

Any delineation of instructional outcomes needs to consider the environmental context. While Murname (1981) has argued that classroom factors have the most direct impact on instructional outcomes, he was undoubtedly referring to alterable variables. Certain environmental variables are not very manipulable. Inevitable among these factors is a consideration of the socio-economic status (SES) of learners.

Socio-economic status and family processes. It has been argued that socio-economic status explains most of the variance in academic achievement (Coleman et al., 1966; Jencks et al., 1972; Kyriacou & Newson, 1982). However, recent work by White (1980) indicates that when the unit of analysis is the individual learner and not the aggregate, this influence is very markedly diminished. This is also argued by Heyneman and Loxley (1983). White further points out that SES effects tend to diminish with age. This finding is echoed in a recent review of the school effects literature (Glasman & Biniaminov, 1981). In a study that attempted to distinguish between SES background and family process (which tends to be correlated with SES), Fotheringham and Creal (1980) found that the process factors are more predictive of achievement than is simple SES. They cite family processes such as press for achievement, language models, home guidance, and participation as critical to educational attainment. This is especially true for low-SES students.

Obviously, the aforementioned research has implications for the importance of parental involvement in the educational process and this has been noted by numerous researchers (Clauset & Gaynor, 1982; Conklin & Dailey, 1982; Detroit Public Schools, 1981; Donovan, 1983; Frazier, 1982; Gauthier, 1982; Hersh, 1982; Heyneman & Loxley, 1983; Kelley, 1981; Levine & Stark, 1982; Lezotte, 1982; Moles, 1982; National Committee for Citizens in Education [NCCE], 1980; Stallings, 1980; Thornburg, 1981). Etzioni (1983) has argued that appropriate family process must precede and be concurrent with instructional processes for the achievement of effective outcomes. Yet, a small and preliminary study by Thornburg found that parents and students are less interested in parental involvement at the secondary level than are administrators and teachers. A limited study of several hundred, predominantly minority, under-achievers found that there was an inverse relationship between age at which contacts occurred and achievement of the students involved (Iverson, Brownlee, & Walberg, 1981). This pattern is most likely non-causal and influenced by behavior problems initially. Whether the inclination is there or not, it is possible to influence parental participation and, therefore, family process. (For a discussion of the problems and promises of attempting to do so, see Clauset and Gaynor, 1982; Moles, 1982.) This finding is especially encouraging if these process variables are indeed more important than mere SES, which is not feasible for educational manipulation.

Monetary resources. Some other manipulable context factors that seem to have an impact on achievement are related to monetary resources. While Matthews (1979) suggests that expenditures per student correlate with achievement, others have amended this to say that it is the resources which actually reach the student that count (Curran, 1982; Murname, 1981). The aforementioned would include technical support for the teacher in allowing for effective instruction (Gersten, Carmine, & Green, 1982; Gross, 1983; Levine & Stark, 1982). However, beyond the presence of adequately maintained physical facilities, resource variables have not been found to be significantly related to achievement (Murname, 1981; Weinstein, 1979). Some large-scale studies have found institutional effects to be generally overstated and actually account for only a small portion of the variance in student outcomes (Alexander & Cook, 1982). It has been argued that there is considerably greater variance of achievement within schools than there is among them (Centra & Potter, 1980; Rowan et al., 1983). In other words, while institutional aspects contribute to instructional outcomes, classroom processes are probably more critical in determining instructional outcomes.

Class size. Another influence that is related to monetary resources and is primarily institutional, even though it occurs at the classroom level, is class size. The effect of class size on instructional outcomes has been imbued with more certainty and power than we can confidently state. This is due to work like a meta-analysis of 59 studies which seems to suggest that the evidence is unquestionably in favor of smaller classes (Smith & Glass, 1980). While this conclusion has also been reached in small-scale analyses (Wexler, 1980), both of the aforementioned papers note that the benefits are most consistent when class size is less than twenty. In a critical examination of these conclusions, Cacha (1982) argues that the effects of class size are most prominent at the primary level, in basic skills, and for low-ability/SES students who are in smaller classes for two or more years consecutively. Therefore, the evidence is hardly conclusive that there is an inverse linear relationship between class size and achievement. However, this is not to suggest that classes can be increased in size without any detriment.

On a related note, Weinstein (1979) found quite a number of studies which indicated that increased student density was related to increased aggression and dissatisfaction, while minor design modifications resulted in increased interaction with materials, decreased interruptions, and more substantive questioning. However, when density is defined as square footage of space per learner and teacher/learner ratio, an interactive relationship was found, depending on type of instructional situation and motivation (Weldon, Loewy, Winer, & Elkin, 1981). High density and low motivation situations were more effective for lecture. Low density and high motivation were effective for independent study conditions. Whereas, high density and high motivation were effective for discussion situations. These results suggest that the effect of school density is dependent on the motivation of the student and the method of instruction.

Intrapersonal Influences

Certain individual characteristics have a profound effect on educational processes and products. This section will attempt to present those that seem especially salient for effective instruction.

Verbal skills. Several studies have found that teachers with superior verbal skills are more effective (Coleman et al., 1966; Holmes, 1981; Murname, 1981). However, Shavelson and Stern (1981) found that teachers high in verbal skills use more complex and diverse teaching methods, and these methods were negatively associated with achievement and self-esteem among their students. They do suggest that the causal direction of this relationship has not been established. Perhaps there is an aptitude-treatment interaction with student verbal reasoning, since that has been strongly correlated with achievement (Fontes, Kellaghan, & O'Brien, 1981). Herron (1979) notes that aptitude-treatment interactions (ATI) virtually dictate that what is interesting and effective for one student is not always so for another. Tobias (1976) defines ATI as individual characteristics that affect the success of variations in the pace or style of instruction. Different students both want and need different instructional environments (Walberg & Moos, 1980). Ignorance of these effects tends to make the results of research seem extremely ambiguous and inconsistent (Matthews, 1979).

Teacher qualifications and experience. The effectiveness of teachers is often measured by student grades and scores on achievement tests. There are numerous empirical studies linking various teacher characteristics and instructional outcomes. Teacher qualifications and student performance have been found to be positively associated (Ponder, 1977; Winsor, 1978).

In addition, teacher experience has been positively correlated with the achievement of high-ability students. However, an aptitude-treatment interaction is present since this variable has also been inversely correlated with effectiveness for low-ability/SES students. This may be due to the fact that those who are new to the profession have greater enthusiasm than experienced instructors and this is needed to motivate less able students (Murname, 1981). And yet, Keavney and Sinclair (1978) argue that the most effective teachers are less nervous. Might we not expect the novice to be more nervous? Indeed, Andersen, Norton, and Nussbaum (1981) find effective teachers to be perceived as relaxed. They also found friendliness, openness, and expressiveness to be correlated with effectiveness.

Social sensitivity. A small study of pre-service teachers found that teacher social sensitivity was correlated with creative instructional attitudes (Holman & White, 1978). Sandven (1981) found that teachers perceived as having high social sensitivity were also perceived as being more effective. While these are only observers' perceptions, others have found that field dependence/independence of teachers is related to awareness of students' preferences (Mahlios, 1980).

Field dependence/independence. Increasingly, research has begun to focus on how the cognitive styles of both the teacher and student interact with instruction to produce differential outcomes. The style that has been examined most frequently is that of field dependence/independence. Field dependence/independence is a cognitive style that is assessed by examining individual responses to field-and-ground instruments (Njus, Hughes, & Stout, 1981). Field-dependent individuals are more involved with peers and interpret information via the total gestalt, whereas field-independent persons are more detached and analytic (Saracho & Spodek, 1981). While results in this area are very tentative, they are interesting. Field-independent teachers are found to be generally more effective than are field-dependent teachers (Saracho & Spodek). Meanwhile, Njus et al. (1981) found no association between field dependence/independence and achievement with different instructional styles that were designed to exacerbate style differences. Another study found that varied instructional methods failed to affect achievement of those with different cognitive styles (Onyejiaku, 1982).

Studies that have compared the cognitive styles of both teachers and students found that these styles influence respective expectations (Saracho & Spodek, 1981). It seems that field-dependent teachers prefer discussion while field-independent teachers prefer lecture (Mahlios, 1980; Saracho & Spodek, 1981). This might tend to have implications for the instructional styles and capacities of teachers. Yet, Mahlios found that teachers of either style show no interactional differences with students of either different or similar styles, although field-dependent students both seek and receive more teacher time and contacts. However, Saracho and Spodek found that field-independent teachers have greater expectations for those of dissimilar style than do field-dependent teachers. Furthermore, when student cognitive style is matched or mismatched with teacher cognitive style, field-independent teachers are more effective generally than are field-dependent teachers, and field-independent teachers are more effective with field-independent students than with field-dependent students. The least effective situation in this preliminary research was a match of field-dependent teachers and field-dependent students (Saracho & Spodek).

Locus of control. Another intrapersonal factor involves internal/external locus of control. This self-perception reflects whether the individual believes that events which happen to him/her are controlled or influenced by his/her behavior. Internal locus of control is the belief that rewards are a consequence of behavior, whereas external locus of control is the belief that rewards are the result of fate, luck, chance, or the whims of other people. Two studies by Rose and Medway (1981a; 1981b) found that teachers with an internal locus of control have fewer classroom management problems, greater time-on-task and greater student achievement. Darom and Bar-Tal (1981) found that, regardless of locus of control placement, teachers were inclined to take at least part of the credit for student achievement, while placing all blame on the student when performance was low. This corroborates earlier work done by Beckman (1970). While these styles are potentially influential to instructional outcomes, they seem to be malleable on both the part of teachers and students.

Interpersonal Influences

Relationships between teachers and students have been shown to affect educational processes and outcomes. Two major areas of study include classroom climate and teacher expectations.

Classroom climate. An important influence on instructional outcomes is classroom climate. Classroom climate may be defined simply as the atmosphere which pervades the classroom setting. Some researchers maintain that teachers are the primary determinants of climate in the classroom (Schultz, 1982). Others (Fraser & Rentoul, 1982) argue that classroom climate is shaped in great measure by the climate of the school. While climate has been found to vary by subject area (Hearn & Moos, 1978), it is often seen as an expression of teacher personality through need for control (Beattie & Olley, 1977; Benninga, Guskey, & Thornburg, 1981; Bickel, Qualls, & O'Neill, 1980; Fordham, 1982; Hearn & Moos, 1978; McCarthy, 1977; Welch & Halfacre, 1978). Experimental studies of pre-service teaching have found that the teacher's need for control is inversely correlated with student self-esteem, motivation, and achievement (Deci, Spiegel, Ryan, Koestner, & Kauffman, 1982; Halpin, Halpin, & Harris, 1982). Nevertheless, Sheppard (1978) found that students who like the teachers' level of control achieve more. Parenthetically, a study of perceptions and preferences regarding climate found that congruence between these, for the student, resulted in higher achievement (Fraser, 1982). This congruence of perception and preferences has been associated with adjustment as well (Nielsen & Moos, 1978). Nielsen and Moos also noted that students who preferred more flexibility performed less well in a high-structure environment. Finally, Fraser concluded that while both students and teachers preferred a more flexible environment, teachers perceived the environment to be more flexible than did their students.

Teacher expectations. Most observers emphasize that teacher respect for students will tend to promote a more positive classroom climate (Beattie & Olley, 1977; McCarthy, 1977; Welch & Halfacre, 1978). Obviously, this respect would extend to beliefs about the students' capabilities. Consequently, the voluminous literature on teacher expectations is important to classroom climates. Teacher attitudes toward students are likely to influence the attitudes of the students towards themselves and others. Peer attitudes toward academic achievement have also been found to be critical for climate, especially at the secondary school level (Brookover et al., 1978; Hamilton, 1983).

Teacher attitudes toward and expectations of students appear to be of paramount importance to the instructional process (Rosenshine, 1978b). Teacher expectations are a central aspect of teaching that first drew considerable attention in Rosenthal and Jacobson's (1968) investigation of the "self-fulfilling prophecy." While this seminal work was a study of teacher biasing of instructional outcomes, subsequent studies of this phenomenon have been unable, for the most part, to replicate those results (Dusek, 1975). However, a meta-analysis performed by Smith (1980), on 47 studies, as well as other studies that looked at naturally-formed expectations, found that these are quite prevalent and they tend to persist and sustain student performance, often at undesirable levels (Cooper, 1979; Guskey, 1982).

While Guskey (1982) found that improvement in instructional effectiveness reduces the correlation between expectations and achievement, a larger study found that teacher expectations are quite resilient and, once formed, tend to overpower disconfirmations (Bognar, 1982). Indeed, teachers' perceptions of ability of very young primary students have been highly correlated with achievement up to five years later (Archer & Edwards, 1982). It is not known whether these perceptions were simply astute or led to teacher behavior that biased future achievement.

It has been claimed that teachers' attitudes affect their own behavior (Cooper, 1979; Shavelson & Stern, 1981; Smith, 1980; Thompson, 1980). Yet, a small study of primary school classes was unable to substantiate the link between teacher expectations and behaviors. However, teacher and student behaviors were linked to one another, and they were linked to achievement (Luce & Hogue, 1978). Additionally, Smith observed that teacher expectancies have little effect on teacher willingness or motivation to teach disparaged groups. However, programs to change behaviors of teachers of low-ability students have been correlated with increased student achievement (Kerman & Martin, 1980).

Research that seems to clarify these seemingly conflicting results is seen in more recent work. A small study of elementary school students by Pflaum, Pascarella, Boswick, and Auer (1980), found that students' behaviors prompt more differential behavior than do overt status characteristics, but once differential behaviors are instituted, they do tend to influence expectations. The development and fulfillment of these expectations seems to follow an interactive process that is not unlike a "labeling" (Feldman & Theiss, 1982). The predisposition exists to apply the label to individuals of certain groups. These individuals are more likely to behave in a disapproved manner and when they do, the label is applied. The labeled parties come to accept their label and to reinforce it by future behavior. An example of this is teacher preference for those that sit in the "action zone" (front and center), which is more characteristic of high-ability/SES students (Fordham, 1982; Good, 1981; Washington, 1979). Daley and Suite (1982) have found the particular tendency to ascribe ability in the aforementioned situation varies with teacher anxiety. In a related manner, Schultz (1983) proposes that classroom climate mediates teacher expectations as climate influences different members of the classroom. Indeed, Kerman and Martin (1980) note that high-ability students often model teacher behavior toward low-ability students and that teachers are most sensitive to and accepting of the feelings of high-ability students.

Whether teacher expectations operate in an a priori or interactive fashion, they are apparently present with various deleterious effects. Cooper (1979) recites a litany of differential treatment that serves to fulfill the expectation. Teachers are warmer with students they believe to be bright. They use more smiles, head nods, and eye contact, and are more personal in their interactions with students perceived to be of high ability. These students are the recipients of more praise, have more questions directed to them, and are encouraged more to respond appropriately. Students perceived to be talented tend to receive higher quality instructional material. On the other hand, students perceived to be less able get more criticism and more control as a way of minimizing instructor contacts. This additional criticism and control contributes to more counter-productive passivity in the classroom. These findings are echoed in the meta-analysis by Smith (1980), as well as reviews of other work (Brophy, 1981; Good, 1981; Washington, 1979).

DeMeis and Turner (1978) found that teacher expectations can be affected by the student's race, dialect, and physical attractiveness. In terms of personality, as well as current and future academic abilities, teachers rated black students more negatively. Those who spoke with a black dialect were rated more negatively than standard English speakers. Physically attractive students were also rated more highly. These are some of the characteristics that can serve as catalysts for the labeling process which may negatively impact the achievement of certain students.

Methods and Techniques

The effects of many instructional strategies have been studied. In this section, research regarding direct instruction, programmed instruction, computer-assisted instruction, advance organizers, and questioning will be highlighted.

Direct instruction. A delineation of effective instructional methods should most appropriately begin with what has come to be known as "direct instruction" (Rosenshine, 1978a). This approach has been associated with the most unambiguous findings of effectiveness (Powell, 1978). However, there are some questions about its utility for high-achieving, intrinsically-motivated students with an internal locus of control. Such students in the primary grades do less well under this method in subjects other than mathematics (Janicki & Peterson, 1981). Yet, it seems that parental approval and participation might militate against such a pattern. In a small study of primary students that incorporated direct instruction with parental help at home, Corno, Mitman, and Hedges (1981) found this to be effective not only for achievement, but also for self-esteem, anxiety, and sense of personal control.

Overall, direct instruction is similar to traditional or formal instruction and has been investigated and advocated as superior by numerous educators (Behling, 1981; Brandt, 1982; Cooley & Leinhardt, 1980; Donovan, 1983; Egan, 1982; Evertson, Anderson, Anderson, & Brophy, 1980; Gage, 1979; Gauthier, 1982; Holmes, 1981; Peterson & Walberg, 1979; Rist, 1970; Rutter et al., 1979). Direct instruction focuses on academic goals (Detroit Public Schools, 1981; Edwards, 1981; Lezotte, 1982; Mann & Lawrence, 1981; Rosenshine, 1978a). Teachers using this method must be proactive and not reactive in determining the appropriate difficulty of subject matter, and must clearly communicate task agenda and timetable in a manner that promotes continuity, but is relaxed (Anderson, 1981). Clear formal objectives enable easier evaluation and have been associated with achievement (Bennett, 1978; Goldschmid, 1981; Herron, 1979; Hersh, 1982; Land, 1979; Land, 1980; Rosenshine, 1978a). However, an extensive review of studies on such objectives finds that post-objectives enhance relevant instructional outcomes most and pre-objectives (as shared with students) depress incidental outcomes (Melton, 1978). Therefore, to enhance both relevant and incidental outcomes, objectives for a particular lesson should be shared with students subsequent to initial presentation of the lesson. Kennedy, Cruickshank, Bush, and Myers (1978) have found that in various settings secondary students' perceptions of clarity revolve around understandable examples and appropriate pacing. In any event, it has been noted that direct instruction is teacher-centered with high structure, extensive monitoring, and task orientation which promotes student involvement and achievement (Edwards, 1981; Mann & Lawrence, 1981). The frequent evaluation and academic feedback advocated by many (Detroit Public Schools, 1981; Donovan, 1983; Ebel, 1980; Edwards, 1981; Gauthier, 1982; Gross, 1983; Hersh, 1982; Lezotte, 1982; Mackenzie, 1983; Mann & Lawrence, 1981; McKenzie, 1979; Murname, 1981; NCCE, 1980; Porter, 1983; Squires, Huitt, & Segars, 1981) help to insure greater amounts of "time-on-task" which has been investigated independently but is an integral part of direct instruction. Time-on-task will be addressed in depth in Section III.

Programmed instruction. Other similar approaches that encompass many of the methods of direct instruction with a more individualized operationalization have been investigated and advocated. Several forms of programmed instruction, which controls the instructional sequence and demands correct answers before movement and attainment of objectives, are delineated by Burris (1968). The utility of hierarchical learning of this sort has been supported by a meta-analysis which found that hierarchical learning facilitates retention and speed, especially at elementary school levels (Horon & Lynn, 1980). However, the order of these hierarchies must be psychological and not deductive since experts and novices differ greatly in their cognitions (Gallagher, 1979; Herron, 1979).

While programmed instruction incorporates hierarchical methods, it also includes active learning with self-pacing, small steps, high success rates, and immediate feedback and reinforcement. The last of these is widely prescribed (Herron, 1979). These are all desirable goals from the behaviorist perspective. Yet, Kulhavy and Yekovich (1979) have noted an aptitude-treatment interaction that distinguishes feedback benefits on the basis of degree of confidence the student has in his/her answer. It seems that students low in confidence have usually guessed and are not helped much by feedback since they have no idea of the grounds for an appropriate answer in the first place.

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Nevertheless, a meta-analysis by Kulik, Cohen, and Ebeling (1980) found that many studies of the efficacy of the programmed instruction approach yielded insignificant findings or, at best, small positive results. They also found that, to a degree, programmed instruction reduces the correlation between aptitude and achievement and may therefore be remedial. A more recent meta-analysis of 48 studies (Kulik, Schwalb, & Kulik, 1982), found that programmed instruction in secondary schools resulted in achievement and attitudes that did not differ statistically from traditional methods of instruction. They did note that the most favorable results were from more recent studies in the area of the social sciences. In any event, Reiff (1980) has argued that programmed instruction, as long as it is not less effective than traditional methods, may be used to free the teacher from drill and repetition to perform the more difficult and desirable aspects of instruction.

Computer-assisted instruction. Newer forms of programmed instruction incorporate microcomputers to assist instruction and other programmed instruction objectives (Burris, 1976; Skinner, 1961). However, a recent review of computer-assisted instruction studies found that they have generated more non-significant or marginal results than positive ones (Rothrock, 1982). Overton's (1981) examination of the effect of computer-assisted instruction in mathematics instruction came up with similarly mixed conclusions. However, a review of recent doctoral dissertations found computer-assisted instruction to have both achievement and attitudinal superiority over traditional methods (Craft, 1982). Two studies of the effectiveness of computer-assisted instruction in nursing education found that it was just as effective, or slightly more effective, for achievement than were more traditional methods (Boettcher, Alderson, & Succucci, 1981; Conklin, 1983). These studies found no student attitude differences resulting from the varied forms of instruction. Also, Kulik, Kulik, and Cohen (1980), found that college-level computer-assisted instruction produces small but significant improvements in attitudes and achievement. These results were obtained with a reduction in learning time of about one-third.

It has been noted that when computers are being utilized in the classroom setting, the teacher's instructional role must remain active or student dissatisfaction will result (Holmes, 1982). Indeed, several reviewers have indicated that teacher support for computer-assisted instruction is critical to effective outcomes in the implementation and instruction of computer-assisted curriculum (Holmes, 1982; Craft, 1982).

As with standard programmed instruction, computer-assisted instruction may be very useful if it can free the teacher from boring and tiring repetition (Gagne, 1982; Hazen, 1982). This can allow for more teacher time spent with individual students, as well as more student action/interaction (Holmes, 1982). Beyond this, advances in artificial intelligence may enable thoughtful and sophisticated programs to facilitate divergent thinking and problem solving through simulations and the like (Fisher, 1982; Gagne, 1982; Gallini, 1983; Morris, 1983). With the phenomenal rate of knowledge increments in modern society, familiarity with instructional tools that enhance the utilization of that knowledge is quite desirable (Ahern, 1982).

Not unlike many other educational methods, some indications of aptitude-treatment interactions have been found. Atkinson (1974) found that boys make greater gains in reading with computer-assisted instruction. Others have found that differences in personality types affect the rate of success and attrition of adult students (Hoffman & Waters, 1982).

Other individualized instructional improvement attempts are often more like "open education" (Bennett, 1979; Godfrey, 1977), which, as we will see in the next section, has been inversely correlated with achievement of basic skills on standardized measures (Brandt, 1982).

Advance organizers. Choice of instructional materials is an important aspect of teaching. As Herron (1979) has noted, instructional materials that make sense are remembered better than those that do not. It was probably this conclusion, reached by others at earlier times, that led to the development of the instructional technique known as advance organizers, subsumers that attempt to relate potentially meaningful instructional materials to the existent cognitive structures of the student. Advance organizers are intended to be at a higher level of abstraction and generality than the material and are different from overviews which are usually the same level as the other instructional material (Barnes & Clawson, 1975).

Early reviews of the effectiveness of this approach concluded that it had yet to be demonstrated (Barnes & Clawson, 1975). However, more recent and sophisticated meta-analyses of over 200 studies have concluded that advance organizers are superior, at least in the short-run, to standard instructional material presentation (Kozlow & White, 1980; Luiten, Ames, & Ackerson, 1980). Yet, these researchers reach different conclusions on whether the organizer approach is more effective for lower and higher grades and abilities. Indeed, Kozlow and White muse on the likelihood that advance organizers' effectiveness is simply related to time-on-task considerations.

Questioning. Since the time of Socrates, it has been assumed that one of the fundamental techniques of teaching involved the use of pointed questions. Bloom (1956) has categorized questions into a number of hierarchical types that are often grouped into that of lower-order or convergent (i.e., factual recall) questions and higher-order or divergent (i.e., analytic/synthetic) questions. Recent studies have found that more experienced teachers ask higher-order questions (Fordham, 1982). While studies have examined teacher questioning behavior for quite some time, it is only recently that attempts have been made to ascertain the "effectiveness," as associated with achievement, of these questions. Winne (1979) has noted that these studies are usually fatally flawed and are not very conclusive. Neither higher-order nor lower-order questions have been clearly demonstrated to be more effective (Dillon, 1982). However, certain proponents of the direct instruction method have claimed that lower-order questions are related to achievement (Behling, 1981; Brandt, 1982; Donovan, 1983; Medley, 1979; Rosenshine, 1978a). These researchers do acknowledge some aptitude-treatment-interaction effects. It appears that low-ability/SES students seem to thrive on exclusively convergent, easily answered questions that have less teacher elaboration and less student initiated inquiry. Martin, Veldman, and Anderson (1980) also found that high response and success rates were associated with achievement. They also concluded that criticism, calling on non-volunteers, and teacher provision of the correct answer without student response were inversely associated with achievement. Several fairly large studies of primary grade students, by Gall et al. (1978), have found that instructional outcomes were maximized when recitation was paired with questioning. Others have found that responses are more likely with close-ended (i.e., convergent) questions (Dillon, 1982). Since the majority of questions are usually answered with a single word or phrase, they are probably lower-order questions (Dillon).

Irrespective of all of the above, Redfield and Rousseau (1981) concluded, on the basis of their meta-analysis of 14 studies, that higher-order questions are correlated with increased achievement. They do qualify this conclusion to usage by skilled teachers. Many questions asked in classrooms, especially divergent questions, are posed in an inappropriate form (Napell, 1978). It is the percent of content-relevant questions that is related to achievement (Smith, 1979). The same is probably true for questions at any level of abstraction. Divergent questions that are too awkward or ethereal will probably just confuse students, no matter how sophisticated they are. Also, the number of questions asked by the teacher is inversely related to the number of student questions (Dillon, 1982). The teacher needs to allow greater time for response since divergent questions generate longer and less predictable answers (Dillon, 1982; Doyle, 1979; Lanier & Glassberg, 1981). While teacher follow-up probes usually result in shorter second responses, if they allow the learner to clarify, the likely result will be increased achievement (Dillon, 1982; Martin et al., 1980). All things considered, when appropriately done and effectively matched to respective abilities, multiple-level questioning is probably more effective than any single style (Evertson et al., 1980; Gall et al., 1978; Martin, 1979; Martin et al., 1980).

Summary

In this section we have examined a wide range of factors which, in varying degrees, influence the effectiveness of classroom instruction. Figure 1 provides a summary of the extent to which recent research, taken as a whole, suggests that each of the variables discussed in Section II influences the instructional process (i.e., marginal influence, important influence, or very important influence). This figure also specifies the degree to which educational researchers and other social scientists are in agreement regarding the relative influence of each variable (i.e., little agreement, moderate agreement, or strong agreement).

At this point it would appear that there are four variables which stand out as the primary determinants of instructional effectiveness in the school setting. These are:

- familial commitment to educational objectives
- teacher attitudes/behaviors toward and expectations of students
- classroom climate
- use of direct instruction

FIGURE 1
SUMMARY OF FINDINGS RELATED TO INSTRUCTION

	Variable	Extent of Influence on the Instructional Process	Extent of Agreement Among Researchers
Contextual Variables	Student socio-economic status	Marginal	Moderate
	Familial commitment to educational objectives	Very important	Strong
	School monetary resources	Marginal	Strong
	Class size	Marginal	Moderate
	Student density	Marginal	Moderate
Teacher Personal Characteristics	Teacher verbal skills	Important	Moderate
	Teacher training qualifications	Important	Moderate
	Teacher experience	Important	Moderate
	Teacher social sensitivity	Marginal	Moderate
	Teacher cognitive style	Marginal	Moderate
	Teacher locus of control	Marginal	Moderate
Interpersonal Variables	Classroom climate	Important	Strong
	Teacher attitudes/behaviors toward and expectations of students	Very important	Strong
Methodological Variables	Direct instruction	Very important	Strong
	Programmed instruction	Marginal	Moderate
	Computer assisted instruction	Marginal	Little
	Advance organizers	Marginal	Moderate
	Teacher questioning	Marginal	Moderate

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SECTION III: LEARNING OUTCOMES

by Scott Magnuson-Martinson with Pearl Barner

Educational policy makers, practitioners, taxpayers, and parents are demanding both fiscal accountability and useful information about the outcomes of the educational process. Questions are being raised about the efficacy of teaching materials, instructional methods, and school climate in bringing about achievement, and cognitive and affective outcomes. An interactive network between the educational and behavioral sciences has been established for a long time (Glasser, 1979). The fields of psychology and social psychology, in particular, have demonstrated the capacity to investigate complex cognitive/intellectual, personality, and social variables and contribute findings with utility for understanding and improving the educational process. The multitude of interactive psycho-social-educational variables examined precludes complete attention within the confines of this section. Therefore, many variables which impact on the outcomes of schooling will not be addressed at all and some of those attended to will receive a rather cursory treatment. However, those variables which seem to have the greatest import will be appropriately highlighted.

Perhaps one of the most well-known and deliberate contributions made by psychologists and social psychologists to education lies in the area of learning theories. Learning theories are fairly systematic and (at least potentially) testable sets of propositions that attempt to explain the process by which knowledge is accumulated and integrated into the cognitive structure of individuals. Learning theories both stimulate research and provide a framework for integrating and interpreting the findings of that research.

Rather than having universally accepted laws/theories of learning, there are numerous alternate explanations for how this process takes place. This competition is due to the complexity of the phenomena in question, as well as the variability of the disciplines and subjects under study. The result of this situation is that the various theories are continually in stages of revision.

Instead of devoting the considerable time and space necessary for an adequate presentation of the plethora of acceptable theories of learning, we have decided to call your attention to some references that give this topic more than perfunctory attention (Snelbecker, 1974; Bigge, 1982).

Specification of Learner Outcomes

Bloom (1976) outlines some general affective outcomes of school learning in the following areas: 1) *subject-related affect*—a positive or negative judgment of capability in a subject which develops over a long series of learning tasks in a particular subject; 2) *school-related affect*—a general disposition to regard the school and school learning in a positive or negative way, which is influenced by performance in a series of subjects and the value placed on this learning by the students, teachers, and parents; 3) *academic self-concept*—a positive or negative self-view of learning which develops after adequate or inadequate appraisals of performance on a number of learning tasks and subjects are generalized; 4) *non-academic self-concept*—self-appraisals with regard to athletics, interpersonal relations, appearance, etc.; and 5) *mental health*—the ability to take stress and frustration with a minimum of debilitating effects. Level and type of achievement and rate of learning are some other learner outcome variables dealt with by Bloom.

Gagne and Briggs (1974) describe five categories of learning outcomes: 1) *intellectual skills*—the most basic structure of formal education, ranging from such elementary skills as composing a sentence, to the advanced technical skills of science, engineering, and other disciplines (these skills are embodied in every subject in the curriculum); 2) *cognitive strategies*—the self-management capabilities that govern the individual's own learning, remembering, and thinking behavior. These skills are expected to improve over a relatively long period of time as the individual engages in more and more studying, learning, and thinking (problem solving is an example of a cognitive strategy); 3) *verbal information*—verbal knowledge of names, facts, generalizations, propositions, etc.; 4) *motor skills*—writing, athletics, use of instruments and other skills that humans must use to function competently; and 5) *attitudes*—learned dispositions that develop positive or negative reactions toward some person, thing, or situation. Schools are usually expected to establish socially-approved attitudes such as respect, responsibility, and self-esteem.

Gagne (1977) recommends that criterion-referenced testing be used to assess learning outcomes. His type of criterion-referenced testing requires that the first step is to make decisions concerning what is to be measured in the precisely defined manner of the domain corresponding to a specific learning objective. The next step is to construct the test so that the item, domain, and objective are consistent. The third step in Gagne's criterion-referenced testing is to decide the most useful way to express the results. Reference to a statistical norm may be useful for some purposes, while reference to some defined standard may be useful for others.

While affective learner outcomes are usually deemed important in and of themselves and as contributing factors in achievement outcomes, it is the latter which receives the most attention currently. Various studies have assessed each of these outcomes. The following sections will attempt to delineate the results of those assessments.

Correlates and Conditions of Effective Learning

Contextual Influences

School climate and the principal's leadership are two contextual influences which have been found to affect student learning. These areas of research will be briefly explored.

School climate. Recent research on schools and other formal organizations strongly indicates that organizational climate has a major influence on the effectiveness of these social groupings. Stewart (1979) indicates that climate is to an organization what personality is to an individual. Central among the climate considerations found to be associated with achievement is one of a consistent value system that esteems academics and achievement (Brandt, 1982; Fairman & Haddock, 1981; Gauthier, 1982; Gray, 1981; Handler, 1972; Hersh, 1982; Holmes, 1981; Lasley & Watson, 1982; Lezotte, 1982; Matthews, 1979; Murphy, Weil, Hallinger, & Mitman, 1982; National Committee for Citizens in Education [NCCE], 1980; Squires, Huitt, & Segars, 1981). This value system holds high expectations for achievement (Stewart, 1979). Similarly associated with achievement is an atmosphere that is disciplined and orderly, while emphasizing the positive (Behling, 1981; Brandt, 1982; Detroit Public Schools, 1981; Gauthier, 1982; Hersh, 1982;

Hodges, 1981; Lezotte, 1982; Mann & Lawrence, 1981; NCCE, 1980; Purkey & Smith, 1982; Squires et al., 1981).

Principal's leadership. Numerous observers have argued that the principal's leadership is pivotal in promoting the desirable climate factors just mentioned (Behling, 1981; Curran, 1982; Frazier, 1982; Kelley, 1981; Miller, 1982; Shoemaker & Fraser, 1981). However, it has been found that instructional participation by principals is associated with greater organizational formality and centrality (Centra & Potter, 1980; Shoemaker & Fraser, 1981). This would not be tremendously notable except for the fact that a related study found that organizational formality has also been found to reduce learner in-class participation and independence through teacher modeling of administrative style (Fraser & Rentoul, 1982). These conclusions are echoed by Gitlin's case study (1981), which found that higher levels of administrative control resulted in non-reflective and uncritical teaching. Furthermore, an earlier theoretical essay argued similarly about authoritarian administration negatively affecting independence and creative cross-fertilization of ideas (Muschel, 1979). Nevertheless, a small rural study by Bhella (1982) indicates that teacher rapport (or lack thereof) with the principal seems not to affect classroom activity. These disparate conclusions seem altogether plausible since the units of school organization have been described as "loosely-coupled," which is to say that teachers may have more autonomy than subordinates in other organizations, and while they may be influenced from above, it is less likely for them to be so easily controlled (Purkey & Smith, 1982). Indeed, Fordham (1982) notes that there is often little consistency between principals' expectations and teachers' classroom methods.

All told, it seems as though the admonition for instructional leadership is best interpreted as for "enlightened and humane" leadership rather than impersonal and authoritarian command (Fairman & Haddock, 1981; NCCE, 1980; Rabow & Robischon, 1972; Stewart, 1979). Stallings (1980) argues that effective principals tend not to prescribe specific instructional methods for teachers, but rather to offer ongoing assistance and support to them. This would seem especially appropriate given accumulating evidence that educational administrators tend to have a less refined and more global view of their school's effectiveness (Ogilvie & Sadler, 1979). If this is in fact the case, it may be that these organizational actors represent a less than perfect conduit for the initiation and implementation of school improvements. Finally, some investigators have suggested that, while the principal is normatively the most likely instructional leader, this direction certainly can and does come from other organizational actors (Gersten, Carmine, & Green, 1982; Lezotte, 1982).

Intrapersonal Influences

Certain characteristics of the learners themselves affect their learning outcomes. Areas of study include hemisphericity, brain growth, exceptional learners, locus of control, attribution of success and failure, motivation, and academic self-concept.

Hemisphericity and brain growth. Over the past several years, some very exciting work has been conducted exploring how learning is influenced by such variables as cerebral hemisphere dominance and brain growth. Apparently, the intellectual, analytic, verbal, logical, and segmented processing resides in the left hemisphere, while intuitive, subjective, spatial, unstructured, and random open-ended processing resides in the right side. One of the leading proponents of incorporating research results on this topic into learning situations has been McCarthy (1980). She has proposed an instructional model designed for application with different learning styles and brain modes.

McCarthy also acknowledges the import of recent research on brain growth that tends to corroborate Piaget's developmental stages. Some researchers have gone so far as to suggest that the nature and amount of learning during the plateau phases of brain growth should be greatly different than during the spurt phases (Cramer, 1981; Telzrow, 1981).

Exceptional learners. Some connections have been made between brain growth, learning styles, and exceptional learners, although the findings are contradictory. Exceptional learners tend to be defined as those of high intelligence and/or creativity. In a moderate size study of secondary school learners, Reynolds and Torrance (1978) found that those with right hemisphericity scored higher in creativity and problem solving. This finding is echoed by Sterling and Taylor (1980). However, Katz (1978) conjectures on some related studies that seem to indicate that those who balance utilization of both hemispheres maximize personal creativity. A review of recent research supports this conclusion (Levy, 1983).

Katz (1978) cites studies that indicate mixed hemisphericity is correlated with a field-independent learning style (see Section II for discussion of this style). Others have found field independence to be associated with "gifted" or precocious learning ability (Dunn & Price, 1980). Alvino (1981) suggests that precocity or intelligence may be qualitatively different from creativity, although some statistical relationship has been found between the two.

Whatever the nature of exceptional learning, it needs to be identified early to be adequately developed (Chambers & Barron, 1978), even though some have found it difficult to determine strong and consistent differences between gifted and non-gifted learners (Glover, Zimmer, & Bruning, 1980). Nevertheless, several investigators have found that creativity can be increased through deliberate training (Carter & Torrance, 1978; Jarial, 1980; Reynolds & Torrance, 1978). However, in a telling caveat, Mansfield, Busse, and Krepelka (1978) argue that when experimenter effects and practice effects are considered, the efficacy of creativity training has not been established.

Locus of control. Other intrapersonal influences are less biological-developmental than are the aforementioned. Locus of control, perception of the contingency between one's behavior and rewards, is a variable which has been theoretically and empirically linked to the academic achievement of learners. Stipek (1980) studied 89 first graders and found internal locus of control to be positively related to the verbal achievement scores of fourth grade males. These findings have been corroborated in an extensive review (Glasman & Biniaminov, 1981). Some studies of the relationship between locus of control and achievement have involved actual intervention in the classroom.

Wang and Stiles (1976) reported that when second graders were given complete control over when they did assignments, they completed a significantly higher percentage of their assignments than when the teacher determined the order of completion. The learners' perceptions of control were also significantly correlated with their task completion rates. Strickland, Morrison, Guild, and Barefoot (1981) have found that teacher responsiveness improves learner attitudes and enhances sense of control. The sense of control has also been tied to the level of aspirations of learners (Seidel, Wagner, Rosenblatt, Hillelson, & Steltzer, 1978).

Baird and White (1982) note that achievement outcomes are actually the result of learner decisions. Self-control affects the nature of those decisions. Learners lacking in perceived control are less able to accurately evaluate themselves and therefore are less likely to make effective decisions. Similar findings have been presented by Wang (1979).

Attribution of success and failure. Perception of self as a puppet (as with external locus of control) or the puppeteer (as with internal locus of control) are simply attributions that one makes about oneself. According to Ames and Ames (1978), a learner's evaluation of self involves two components: 1) attribution of the cause of academic outcomes, and 2) the positive or negative feelings associated with the attribution. They propose that the interpretation of achievement outcomes involves four attributional factors: ability, effort, task difficulty, and luck. They define ability and effort as internal characteristics of the individual and task difficulty and luck as external to the person. Ability and task difficulty are usually stable or uncontrollable by the learner. Those who are successful at a task tend to explain the outcome in terms of high ability, sufficient effort, good luck, and/or an easy task. Failure performance is likely to be attributed to low ability, lack of effort, bad luck, and/or a difficult task (Ames & Ames, 1978; Bar-Tal, 1978). It is theorized that if failure at an achievement task is attributed to low ability (stable factor), then future failure will be anticipated. Conversely, when failure is attributed to unstable elements, such as effort or luck, it implies that inconsistencies between past and future behaviors could occur and, accordingly, lead to persistence in the face of failure (Bar-Tal, 1978; Weiner, 1972; Weiner, Heckhausen, Meyer, & Cook, 1972). Individuals with an internal locus of control are more likely to make such attribution and to persist in attempts to succeed. Cross-cultural validation of the relationship between internal locus of control and school achievement in math and English has been obtained (Maqsad, 1980).

Dweck (1975) demonstrated that altering learners' attributions for failure can change task behavior following failure. She took learners who exhibited helpless behavior after failure and assigned them to a treatment group where only success experiences would be received, or to an attribution-retraining treatment where the experimenter attributed failure to insufficient effort. At the end of the training, the attribution-retrained group showed greater persistence following failure, but no such improvement was found in the success-only group. In a similar study, DeCharms (1976) found that after black learners in the middle grades were trained to perceive themselves as the origin of their behavior, they exhibited more responses indicative of that belief than a control group. They also made greater gains on achievement tests.

Attributional retraining such as this may be especially helpful for females since they have been found to attribute failure to low ability and success to external causes (Dweck, Davidson, Nelson, & Enna, 1978). However, a small experimental study of female college learners found them to project this external locus to others and reject teacher control ability as well (Feldman, Saletsky, Sullivan, & Theiss, 1983). Interestingly, a small study of the influence of gender and locus of control found that internal males and external females are the most creative of learners (Yardley & Bolen, 1980).

Motivation. Harter's (1980) study of intrinsic motivation in elementary school learners may have implications for locus of control and attributions. She has empirically delineated five dimensions of classroom learning which could be characterized as having both an intrinsic and an extrinsic motivational pole: preference for challenge versus preference for easy work, curiosity/interest versus teacher approval, independent mastery attempts versus dependence on the teacher, independent judgment versus reliance on the teacher's judgment, and internal versus external criteria for success/failure. She characterized the first three dimensions as forming a motivational factor and the last two dimensions as forming a cognitive-informational factor. A very important finding in her research is that there is a developmental shift across grades 3-9, from intrinsic to extrinsic on motivational factors and from extrinsic to intrinsic on cognitive-informational factors. This suggests that learners in the lower grades have strong intrinsic mastery motivation, but are also dependent on the information provided by the teacher. Conversely, when learners advance to higher grades, their motivational nature shifts so that they engage in classroom learning to meet the teacher's expectations and to get grades instead of to experience the intrinsic value of learning. They also become less dependent on the information provided by the teacher and are more able to make their own judgments and to determine whether or not they are successful. Perhaps this shift occurs with changing locus of control and attributions. The developmental shift seems to indicate that the educational experience gradually quenches (in a pejorative sense) the learners' intrinsic thirst for knowledge.

Maehr's (1976) review of continuing motivation, which he defines as the tendency to return to instructional tasks when away from the instructional context those tasks were presented in, comes very close to the maintenance of intrinsic motivation. His review of research has indicated that external observation and evaluation of performance may decrease the internal impetus to engage in those activities. If this is so, the frequent evaluation advocated by the "effective schools" and "direct instruction" models may exacerbate the problems of Harter's developmental shift. Indeed, Ramberan (1977) points out that we reify a false dichotomy when we talk of intrinsic/extrinsic motivation. He also notes that promoting school achievement as a way to obtain tangible social rewards, or to avoid negative repercussions, impels motivation to the external end of the continuum. Bowen and Madsen (1978) review numerous studies that seem to verify decline in learner motivation unless there is incorporation of learner input through teacher flexibility.

Academic self-concept. Bloom (1976) has noted that the academic self-concept of low- and high-ability learners becomes increasingly differentiated as they progress through grade levels. Bridgeman and Shipman (1978) discovered that self-esteem was consistently very high in the preschool years and earliest grades, but began to vary about third grade. The strong relationship between third grade self-esteem scores and achievement scores in math, reading, and problem solving suggests that differences in self-esteem may develop in response to school performance. Test anxiety and self-esteem have been negatively linked by Fisher (1977).

Interpersonal Influences

Within classrooms, the ways in which students are grouped for instruction affect the interpersonal relationships among students and teachers, and are related to student learning outcomes. Ability grouping and cooperative group learning are two major areas of study.

Ability grouping. In Section II, teacher attitudes and behaviors toward students were identified as being a critical determinant of instructional outcomes. These findings have powerful implications for the instructional strategy of ability grouping. While some studies have found greater achievement in homogeneous ability groups (Webb, 1982), this outcome is most likely for high-ability learners (Laughlin, 1978; Murname, 1981), especially when their instruction is enriched (Leinhardt & Palley, 1982; Winn & Wilson, 1983). Low-ability homogeneous grouping, especially if it is through negative selection, is not associated with improved achievement (Leinhardt & Palley, 1982; Winn & Wilson, 1983). There is some evidence that ability grouping is most harmful in the early grades (Brookover et al., 1978; National Institute of Education [NIE], 1977). Although, Rosenbaum

(1976) contends that such grouping at the secondary level may negatively influence school-wide achievement.

While protective grouping may be necessary for the seriously impaired, borderline learners are hurt by it and negative selection tends to be detrimental to the self and educational attitudes of lower-ability learners (Leinhardt & Palley, 1982; Winn & Wilson, 1983). This is especially true if "lows" are faced with the confusion, year after year, of different teachers using varied ways of dealing with them (Good, 1981). It has been suggested that the smart get relatively smarter because they are allowed to learn on their own without being overwhelmed by vast amounts of inappropriate and often ill-conceived instruction (Rohwer, 1980).

Learners do engage in a wide range of social comparisons within their schools and are adept at figuring out differences. Hence, ability grouping may result in feelings of relative deprivation in less skilled students (Levy, 1983; Schwarzer & Schwarzer, 1982). Indeed, Winn and Wilson (1983) argue that lower-ability tracks tend to precipitate an anti-educational counterculture among the participants.

Examinations of the instruction provided to lower-ability groups find it to be watered-down, unimaginative, material-scarce, and decidedly not remedial (Leinhardt & Palley, 1982; Winn & Wilson, 1983). Leinhardt and Palley conclude that achievement in ability groups is not simply the result of the grouping, but rather an outcome of the concomitant expectation and teaching. The primary danger in ability grouping appears to be that expectations for "lower ability" learners are reduced (Acland, 1972; Alexander & McDill, 1976; Good, 1981; Hargreaves, 1967; Heyns, 1974; Schafer & Olexa, 1971). Winn and Wilson note that lower-ability groups have been found to have poorer teachers. All told, recent reviews of studies of educational tracking for low-ability learners have come to the conclusion that "the least restrictive setting possible is the most desirable arrangement" (Detroit Public Schools, 1981; Leinhardt & Palley, 1982, p. 561). Therefore, approaches to maximize the learning of those of different abilities might more appropriately be modified along the lines of the clustering programs which group by five criteria, only one of which is ability (Minnesota Department of Education [MDE], 1982; Racine Unified School District [Racine], 1982).

Cooperative group learning. While ability grouping may have more costs than benefits, within-class groups may facilitate learning if they are based on criteria other than ability. While cooperative group learning has long been associated with increased social participation (Judge, 1978), recent studies have found this approach associated with increased achievement—if individual accountability is emphasized (Johnson & Johnson, 1983; Slavin, 1980; Slavin & Tanner, 1979). In a meta-analysis of 122 studies that compared cooperative, competitive, and individualistic learning, Johnson, Johnson, Skon, Maruyama, and Nelson (1981) found cooperative learning to yield superior achievement results and to enhance motivation. Also, several studies have found that time-on-task does not vary between well-managed small groups and whole-class instruction (Cornbleth & Korth, 1980; Gross, 1983; Johnson & Johnson, 1983). Some other investigations of this approach at the primary level have concluded that it can result in superior learning of higher-order concepts (Cloutier & Goldschmid, 1978; Johnson & Johnson, 1983; Johnson, Johnson, & Skon, 1979; Sharon, Ackerman, & Hertz-Lazarowitz, 1979).

Group work can produce and tap otherwise absent skills if the group is managed well through teacher involvement (Akinboye, 1981; Anderson, 1981; Bennett, 1978; Holmes, 1981; Lanier & Glassberg, 1981). However, as Kourilsky (1979) notes, supervision and monitoring are not the same as intrusive intervention which often curtails the processes that produce cognitive gains. The potential for peer instruction has been associated with superior achievement (Donovan, 1983; McKeachie, 1974). While both do better than in traditional instruction, those that tutor do better than those who are tutored (Bennett, 1979). That conclusion was corroborated in a small study by Webb (1982). She found that the high-ability learners achieved more than middle- and low-ability learners in group work, that they give more explanations, and even tend to show responsibility toward the learning of those of low ability. These findings correspond with the results of a study that found that good peer relations help low-ability learners achieve more (Sheppard, 1978).

Competition in schooling has been found to accentuate individual differences, with winners often having inflated views of their skills, while denigrating those of others (Ames & Ames, 1978; Ames & Felken, 1979). This can be especially detrimental for those whose differences are debilitating. For disabled learners, cooperation seems to minimize the pejorative outcomes of the disability. Studies have found that the attitudes toward, and performance of, disabled learners are improved in heterogenous cooperative groups (Armstrong, Johnson, & Balow, 1981; Rynders, Johnson, & Johnson, 1980). Johnson and Johnson (1981) have also found that cooperative groups facilitate greater supportive interaction among minority and majority learners.

While a majority of learners seem to prefer cooperative learning (Johnson & Johnson, 1983), competitive and individualistic learning should also be used (Johnson & Johnson, 1983; Smith, 1982). Current estimates are that 85 percent of classroom learning is competitive, whereas the circumstance in which 65 percent is cooperative seems to be maximally effective (Johnson & Johnson). The various learning formats should be used in an integrated manner. Brookover et al. (1978) have documented that competition between cooperative groups is an effective approach. This approach has also been found to generate greater liking for peers and more positive academic attitudes (Slavin, 1978).

In spite of the impressiveness of the findings of cooperative learning over competitive or individualistic conditions, the following characteristics of the studies analyzed should be noted: the smaller the group, the greater the superiority of cooperation over competition; cooperation was most superior in short period studies; few studies were truly longitudinal.

Cooperation is not unequivocally the proven alternative to the shortcomings of competition. Ames and Ames (1978) discovered that poor performance in a cooperative group may result in the surfacing of dissatisfaction and lowered perceptions of ability. Ames and Felken (1979) found that when a cooperative condition involved group failure, the evaluation of both successful and unsuccessful performances was more negative than in the competitive or individualistic condition. Accessible goals would seem to obviate these potential hazards of cooperative conditions.

Methods and Techniques

Learning outcomes are affected by the specific strategies learners employ or in which they participate. The related areas of research include student time-on-task, mastery learning, open education, and team teaching.

Time-on-task. As mentioned in Section II, a variable that has been correlated with increased achievement under a myriad of conditions is time-on-task. The basic premise of this variable is that the more time on topic, the better grasp of it (Denham & Lieberman, 1980; Fredrick, 1980; Gauthier, 1982; Gross, 1983; Handler, 1972;

Harnischfeger & Wiley, 1976; Lanier & Glassberg, 1981; Lezotte, 1982; Murphy et al., 1982; Squires et al., 1981). However, this finding has been clarified to distinguish between sheer quantity and quality of time (Anderson, 1981; Gross, 1983; Stallings, 1980). The allocated time is less important than the "active learning" or "engaged" time. The importance of this variable has been supported by research conducted outside of the U.S. (Fontes, Kellaghan & O'Brien, 1981). Interestingly enough, in an examination of primary students, Dangel and Hopkins (1979) found the more the allocated time, the lower the percent of engaged time, although absolute amount of material handled did increase. This finding was echoed by Cornbleth and Korth (1980), who also found that engaged time varied by subject. This study also revealed that the percent of engaged time did not vary by achievement level of students unless the format allowed students to work ahead or unless there were a variety of activities available. Moreover, Stallings (1980) has found that time-on-task has an upper limit of effectiveness and that the length of the school day is not directly associated with achievement. Yet, aspects of allocated time such as attendance, absenteeism, and tardiness have been strongly correlated with achievement (Bennett, 1978; Easton & Englehard, 1982; Fredrick, Walberg, & Raster, 1979; Heyns, 1978). Interestingly enough, Bennett found that the presence of more formal instructional methods, like direct instruction, was associated with greater student absences. Perhaps the technique that contributes to greater in-class achievement may also promote greater unscheduled absence, since school is more task-oriented and therefore less fun. A recent examination of time effects has suggested that they are not always as large as expected because of inconsistencies across grades (Karweit & Slavin, 1981). Rosenshine (1978) has noted that attempts to increase both time-on-task and direct instruction are more effective at the primary school level.

Mastery learning. An apparently effective learning condition that shares many procedures common to direct instruction is Bloom's (1971) mastery learning. As first proposed by Carroll (1963), this approach tends to be more individualized, in pacing at least, and has different philosophical underpinnings. Bloom has modified the mastery learning method for standard class group work. He argues that achievement is too often based on aptitude, which is not ability to learn, but speed at which learning occurs. Bloom posits that the vast majority of learners can achieve subject mastery with proper time, pacing, and instructional fit. Furthermore, his research has indicated that this approach can reduce learning time for all students and that up to 90 percent can attain total mastery of material. He argues that the normal curve is not even truly descriptive of learning potential, let alone appropriate for the prescriptive manner in which it is all too often used.

Other research seems to corroborate Bloom's (1971) postulations. A study of moderate size has found that the mastery approach has a weak positive effect on achievement motivation and persistence (Grabe & Latta, 1981). These factors have previously been tied to achievement in school. A small study by Gettinger and White (1979) found that time to learn is strongly correlated with achievement. Their research found that the time variable is more strongly correlated to achievement than is the intelligence quotient of the learners. The time factor has been examined in another small study of college students. Denton and Seymour (1978) found that a dearth of time constraints maximized the acquisition of higher order skills in a mastery learning situation. Whereas, when this approach was embedded within a quarter structure, it yielded achievement necessary to obtain minimum mastery. However, a similar study found that unit constraints in a modified mastery approach actually resulted in greater achievement and retention than a strict mastery approach (Miller & Ellsworth, 1979). Finally, a recent small study of mastery learning found it to be superior in achievement and retention, but to take nearly twice as long as traditional methods (Arlim & Webster, 1983). This finding is in direct contradiction to Bloom's assertion about the time costs of this approach. Additionally, Federico (1982) has found that a computer-assisted mastery learning approach does not totally overcome the effects of aptitude. Cohen (1981) has noted that many implementations of mastery learning are, like most educational innovations, mutilated in the process of adaptation to the existing structure. He goes on to suggest that 96 percent of the failed adoptions of this approach are the result of ineffectual leadership by the principal. Although, in a review of Bloom's work and perspective, Rogow (1981) indicates that he favors modification over transformation without compelling evidence for the latter.

In a thoughtful critique of the mastery learning approach, Cox and Dunn (1979) have outlined some issues that warrant consideration: if too many learners lack the prerequisite background skills on entry to a mastery program, should mastery be defined more minimally so that the success criteria are achieved? Is it really mastery or just competency that is being attained? Does the reteaching and recycling result in true conceptualization or just parroting of desired responses? Are not higher-order operations much more difficult to completely specify for criteria of mastery? Might criterion statements merely serve as a crucible for student frustration if they violate individual agendas? If mastery is predicated on equality of outcomes based on differences in treatment, how do employers decide which "A" student is the best value for positions that they seek to fill? While the intent of education is the production of knowledge and skills, it is also a method of evaluating and allocating individuals to various positions in society. This functional process cannot go without consideration.

Open education. Another approach, at considerable variance with more traditional educational models, is open education. Open education approaches had their heyday about a decade ago. Open education is generally more learner-centered, more individualized, and more flexible in its goals and agenda than is traditional education. During the past ten years, this model has been increasingly criticized for being low in time-on-task, due in large part to the distraction of multiple activities in the classroom (Anderson, 1981). Rosenshine (1978) notes that learner choice is inversely correlated with achievement in basic skills, especially for low-SES learners. Nevertheless, Bennett (1978) argues that high-SES learners may be more predisposed to, and effective in, situations allowing choice. While another study found that high-ability/SES learners do better in either situation than do those of low ability (Greene, 1981). Additionally, a review of educational environments suggests that greater potential for interactive social order and task orientation is inherent in secondary school learners (Walberg & Moos, 1980).

Desirable attitudes have been found in open elementary classes (Cheong & Wadden, 1978). Open classes manifest more total peer interaction, fewer cliques, fewer isolates, and fewer stars, too, when compared to traditional classrooms (McCafferty, 1979). Another study found open and traditional school climates to have a rather complex relationship to creativity. Thomas and Berk (1981) found that originality and flexibility, more abstract forms of creativity, were enhanced for primary school learners more in open than in traditional or intermediary classrooms. Males made the greatest gains in elaboration, a more concrete measure of creativity, in the formal setting. Females made the greatest gains in elaboration in the intermediary setting. Thus, the gender of the learner seems to interact with the effects of the learning condition.

A meta-analysis of nearly 200 studies found that open classes tend to be more effective than traditional classrooms in promoting creativity, independence, positive self-concept, and favorable attitudes toward school, although they seem to be less effective for basic skills (Peterson, 1980). These findings were also corroborated in other extensive reviews (Horowitz, 1979; Wang, 1979; Weinstein, 1979). A more recent review of open education amplifies these conclusions and suggests that much of the potential effectiveness of open education has been compromised by differing conceptualization and implementation (Giacona & Hedges, 1982). This latter caveat is echoed in an examination of various definitions of open classrooms (Marshall, 1981). As far as the control elements of classroom management are concerned, Robinson's (1979) compelling cybernetic analysis of traditional versus modern (i.e., open) systems argues that either may be effective, but that they are mutually exclusive. He goes on to point out that hybrids are doomed to failure because each operates on countervailing principles. Therefore, it seems plausible that half-hearted or ill-planned attempts at openness may be the sort of hybrid that is counterproductive, thus causing some of the aforementioned problems with effectiveness in what purports to be open education. While many studies have found open educational approaches to be less facilitative of achievement in basic skills, Eshel and Klein (1978) found that some experimental open mathematics classes were superior to traditional ones. They suggested that these classes were high in press for academic achievement but that nothing in the concept of open education precluded this emphasis. Indeed, recent results of standardized tests for math and reading in Minneapolis schools indicate that learners in open schools scored higher than those in traditional settings (Paulu, 1983).

Finally, an examination of learners' perceptions of different expectations and treatments, according to learner ability, found that open classrooms are not significantly different on these dimensions (Weinstein, Marshall, Brattesane, & Middlestadt, 1982). In each case there is a general belief that high-ability learners are treated better. However, this study also used a reputational method for determining openness of classroom rather than some objective indicator and failed to control for prior experience with open versus closed classrooms. Both of these shortcomings might serve to contaminate learners' present perceptions of expectations and treatments.

Team teaching. Similarly, team teaching, a learning innovation that emerged in roughly a decade ago, has suffered much the same fate as open education (Armstrong, 1977). While some have found this to be an ineffective method (McKeachie, 1974), the beneficial effects of this approach on teacher attitudes and behavior have been noted (Wang, 1979). As outlined in the last chapter, teacher attitudes and behavior are often associated with those of the learner.

Summary

In this section we have reviewed a variety of factors which in some measure influence student learning outcomes. Figure 2 lists each of these factors, summarizes what recent research suggests to be their relative importance to the learning process, and describes the extent to which researchers agree about their respective roles in shaping student achievement.

There appear, at this juncture, to be five variables which researchers agree substantially influence the learning process in the school setting. These include:

- the clarity of a school's educational values and goals
- the effectiveness of instructional leadership

- whether students are grouped by ability
- the type of learning environment (i.e., cooperative versus competitive versus individualistic)
- the amount of time students spend engaged in educational tasks

The research-based findings presented here, when paired with those offered in Section II, should give serious readers the information necessary to enter into informed discussions of matters related to school effectiveness. This informational base is complemented by the comprehensive analysis of planned organizational change presented in Section IV. In Section IV, it will become clear that knowing *what* needs to be changed in a given school setting is only a preliminary step in the very complex change process. Section IV focuses its attention on the *how* of school improvement.

FIGURE 2
SUMMARY OF FINDINGS RELATED TO LEARNING OUTCOMES

	Variable	Extent of Influence on the Learning Process	Extent of Agreement Among Researchers
Contextual Variables	A clear system of values/goals	Very important	Strong
	Instructional leadership	Very important	Strong
Student Personal Characteristics	Brain growth	Marginal	Moderate
	Student locus of control	Marginal	Moderate
	Student attribution of success & failure	Marginal	Moderate
	Student motivation	Marginal	Moderate
	Student academic self-concept	Marginal	Moderate
Interpersonal Variables	Ability grouping	Very important	Strong
	Cooperative learning environment	Important	Strong
Methodological Variables	Time-on-task	Important	Strong
	Mastery learning	Important	Moderate
	Open education	Important	Moderate
	Team teaching	Marginal	Moderate

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SECTION IV: IMPLEMENTING CHANGE IN EDUCATIONAL ORGANIZATIONS

by Patricia Mullaney

Planned educational change is by definition either explicitly or implicitly oriented toward improving educational outcomes. Yet, with such an apparent commitment to improvement, past planned change efforts have tended to be unsuccessful. For example, one study found that innovations or program revisions in education have had only a 20 percent success rate. Although other similar studies have yielded somewhat different statistics, the overall conclusion is that past planned change efforts in schools have failed more often than not.

It was only after the critical analyses of many innovation failures that an awareness grew concerning the importance of paying homage to the complex matrix of factors that impact upon the planned change *process.* Thus, the lack of success of past innovation attempts was related to "a lack of understanding of how schools work as social systems, how political processes influence change efforts, and the many dilemmas facing those who attempted to facilitate school improvement" (Parish & Arends, 1983, p. 63).

In a sense, it became recognized that the implementation process could itself be considered a dependent variable (e.g., Pressman & Wildavsky, 1973). The independent variables include organizational, environmental, and political factors which interact with one another and influence a change initiative in exceedingly complex ways. Rogers (1969) describes the complexity of planned change efforts based on his analysis of the New York City public school system:

> *Policy statements are only the beginning of the process. Those who make the decisions, even if they were more eager for reform, must negotiate with the professional staff to secure compliance with their directives. They must secure efficient coordination of the actions of all units carrying out the plans, and they must provide rewards and punishments that will ensure compliance, institute performance measures and evaluate how the plans actually worked. Legal and bureaucratic constraints, however, limit the power of the superintendent and the board over the headquarters and field staff, and reforms mandated from above are seldom carried out as they were intended.* (pp. 266-267)

A number of key issues can be distilled from Rogers' statement. First, innovations do not stop with the adoption of the innovation. It becomes important to monitor the innovation as it is adopted and through the course of its implementation. Second, planned change is an *organizational* rather than an individual phenomenon. It is important to consider the organizational variables that impact upon the change effort. Third, planned change is a normative phenomenon; that is, often the values of those initiating the change conflict with the values of the individuals involved in the implementation of the change. Therefore, the implementation of planned change efforts often takes on a political character. This means that negotiation and coordination are essential features of the process. Finally, the innovation tends to become transformed as it is adopted and implemented. McLaughlin (1976) refers to this as the process of mutual adaption.

These four issues will emerge from time to time throughout this paper. In particular, we will focus upon the *implementation* of change in educational organizations. Therefore, in the next part of this section, we will consider the features of educational organizations which set them apart from other complex organizations. More specifically, we will examine formal structural characteristics, the "structural looseness" of educational systems, the role of the principal, and the organizational climate. We will also examine the various perspectives on planned change. We note that there is no synthesized approach to planned change, but only trends that require cautious consideration. Presently, the literature on planned change is largely fragmented and wrought with methodological inconsistencies. We will take note of this as we also consider the results of empirical studies of planned change efforts regarding properties of the innovation, structural characteristics, organizational climate, and the principal's role in the change process. We will also discuss strategies and intervention tactics. The specifics of this section were guided by the findings from our review of the empirical studies of planned change efforts.

The Structure and Dynamics of Educational Organizations

In order to understand the multifacted nature of implementing educational changes at the organizational level, it is first necessary to have a fundamental insight into the characteristics and operations of schools that set them apart from other complex organizations. This becomes especially important when one recognizes that schools deviate substantially from the typical bureaucratic organizations we interface with on a daily basis. In particular, the loosely-coupled nature of schools is an especially salient consideration when attempting to implement change in educational organizations. In fact, as we shall see, the importance of the principal as a leader (as opposed to being an administrator whose role and authority derive their meaning from the bureaucratic structure) is closely related to the structural looseness of schools. That is, it becomes the responsibility of the school to integrate the loosely-coupled components and, in so doing, nurture the school-level cohesiveness that would otherwise tend to be absent.

Porter (1980) summarizes a number of features of educational organizations that set them apart from other types of complex organizations and which are particularly relevant to planned change efforts:

> *Many of these differences have important implications for the implementation of educational innovations. They include such factors as: 1) the unstable, multiple and contested goals of educational organizations; 2) the inadequate and unclear technology of teaching; 3) the complex and unstable environment of schools and the accessibility of schools to outside pressures; and 4) the monopoly nature of compulsory schooling and the consequent lack of incentives to compete. Consideration of these kinds of factors tends to suggest what can happen when a "pure" innovation finds itself in this kind of "dirty" environment.* (p. 80)

Given their complex nature, it is crucial to recognize that educational organizations are *systems*. Thus, changes (planned or unplanned) in one area will result in changes in other areas. To begin to understand planned change efforts requires that attention be given to the various components of educational systems and how they relate to one another. In particular, we will consider the power hierarchy, specialization/professionalization, the role of the principal, the loosely-coupled nature of schools, and organizational climate.

Formal Structure

Schools are bureaucracies. As bureaucracies, they are characterized by the structural features of specialization, professionalization, and a hierarchy of authority. We will consider each of these formal structural features further. Specialization entails breaking tasks down into small, manageable units and assigning them to highly specialized personnel. The more highly specialized an organization is, the more limited is the task of each individual. For example, present day schools tend to be much more specialized than schools were in the Pre-Industrial Era. At that time, schools consisted of one-room classrooms with one teacher and a range of students, all who were treated alike. Today, schools are differentiated in a number of ways. Teaching is separate from administration and other specialites (e.g., nursing, counseling, curriculum development). In addition, teachers are specialized by grade levels and often by subject matter. They may also be specialized according to the diverse needs of the children they teach (e.g., physically handicapped, learning disabled, gifted).

Specialization/professionalization. Related to the specialization is the professionalization of staff. In a bureaucratic organization, individuals are assumed to occupy particular positions in the organizational hierarchy because of their expertise. That is, they possess knowledge and skills that others do not. The extent of knowledge and skills is objectively assessed. For example, teachers are licensed by the state. Expertise, as measured in terms of college degree and examination, has become the standard by which teachers meet formal requirements. To state it differently, teaching has become institutionalized as a profession (or quasi-profession). In recent years, the "licensing" of teachers has been called into question. That is, many critics of education have argued that teachers lack competence to be teaching their children. Many of them go so far as to argue that it is the inadequacy of teachers that has caused a decline in our overall educational system. (It is hoped that the research reviewed in this document will provide a fundamental understanding that the dynamics of school effectiveness and improvement are not attributable to any one factor. Although it would be easy to say that education could be significantly bettered by increasing the competency requirements of teachers, in reality there is a complex matrix of interrelated factors upon which the present state of our educational system is anchored.)

In addition to teaching, even administrative posts have come to be based on objective qualifications (e.g., James, 1982). Thus, there is an emphasis on the administrator's managerial skills. This is evidenced by the emergence of graduate programs in educational administration. Koehler (1979) argues that this (i.e., the requirements of *graduate* training for administrators and *undergraduate* training for teachers) has resulted in a "hierarchy" of administrators and a "lowerarchy" of teachers—a situation which Koehler sees as needlessly distancing the two types of positions, and perhaps producing the "loosely-coupled" nature of schools which we will discuss later.

Hierarchy of power and authority. The means through which the various components of highly complex organizations are coordinated is the hierarchy of authority. Before continuing, it is necessary to distinguish between the terms "power" and "authority." Although there are many (often discrepant) definitions of power, most definitions of power include an element indicating that "power is the capability of the social actor to overcome resistance in achieving a desired objective or result" (Pfeffer, 1981, p. 2). Power is a relational phenomenon (i.e., a given individual will have more power with respect to some social actors and less power with respect to others). In addition, the distribution of power within a given context may become legitimated over time. The legitimation of power in such a manner is denoted as "authority." Thus, authority is a function of one's position in the hierarchy.

In the hierarchy of authority that characterizes present-day large city school districts, policy is supposed to be formulated by local school boards and carried out by superintendents, who pass along directives to the principals of the individual schools. It is up to the principals to make decisions regarding such diverse topics as teaching assignments, scheduling, activities, transportation, and discipline. Teachers, in turn, have authority over their students (and teachers' aides). The extent to which decisions are made by top administrators may be assessed in terms of a decentralization scale. When decisions are made solely by top administrators, an organization is considered "centralized." In contrast, when lower personnel (e.g., teachers) participate in decision making, the organization is referred to as "decentralized."

The Role of the Principal

The formal hierarchical structure of a bureaucracy assumes that authority relationships are clearly delineated. However, in reality the situation is much more obtuse. For example, school boards are *not* always more powerful than superintendents in school systems (e.g., Ziegler, Jennings, & Peak, 1974). In educational organizations, research indicates that the role of the principal is much more pervasive than would be expected.

The prevailing norm of the principal as school leader extends substantially beyond his or her bureaucratic position. Novotney and Tye (1973) differentiated between the concepts of "leader" and "administrator" as follows: an administrator is an individual who uses existing structures and procedures to achieve institutional goals, whereas a leader creates new structures or procedures as necessary to reach these goals. The importance of the school principal as a leader is well documented (e.g., Austin, 1981; Kelley, 1980). The leadership role of the principal has been linked to school effectiveness (e.g., Hager & Scarr, 1983; Leithwood & Montgomery, 1982b; Snyder, 1983), student achievement (e.g., Brookover & Lezotte, 1979; Ellett & Walberg, 1979; Phi Delta Kappa, 1980; Schneider, 1981; Weber, 1971), and school climate (Berman & McLaughlin, 1978; Young, 1980).

With the weight of such pervasive expectations placed upon this position, we might ask just what ingredients it takes to make a "good" (or effective) principal. Benjamin (1981) (cited in Hager & Scarr, 1983) has identified the following:

1. Principals take strong initiative in identifying and articulating goals and priorities for their schools.
2. Principals hold themselves and their staff personally accountable for student achievement in basic skills.
3. Principals understand educational programs inside and out. They are instructional leaders rather than administrative leaders. Their first priority is instruction and they communicate it to the staff.
4. Principals are highly visible in the classrooms and hallways of the school.
5. Principals care more about students' academic progress than human relations or collegial, informal relationships with staff members.
6. Principals attempt to handpick their staff members. They put pressure on incompetent teachers to leave and find ways to reward excellent teachers.
7. Principals set a tone of high expectations for students and staff.

Contributing to the "nonbureaucratic" facets of the principal's job is the job's fragmented nature. For example, an ethnographic study (cited in Bebermeyer,

1982) of sixteen elementary and secondary school principals in Chicago examined the discretionary decision making done by principals. The study describes the principals' work day as "a tumble of events with little discernible rank-ordering of the importance of managerial activities" (p. 3). Bebermeyer compares this to managers in business organizations "who make most of their decisions in scheduled, sit-down meetings very unlike the piecemeal, spontaneous activity required of the principals" (p. 3). We will further consider the leadership function of the principal when we discuss variables related to planned change efforts.

Structural Looseness

Regardless of whether the principal's authority is bureaucratically or substantively based, it tends to be constrained by the high degree of autonomy which is characteristic of the teaching profession (e.g., Bidwell, 1965; Lortie, 1975a). Brookover and Erickson (1975) state:

> *The teacher's official status is subordinate in formal authority to the administrator and school board. In practice, however, few can tell a teacher how or what to teach. A teacher's social behavior outside the classroom is more easily controlled than what is done behind classroom doors. Thus, in the teaching of mathematics, for example, the teacher usually claims expertise and accompanying immunity from the authority of those regarded as less expert, regardless of public sentiment or legal sanction. Unless one submits willingly to authority, authority loses much of its meaning; and teachers are less than willing to submit themselves to the "nonexpert" authority of administrators.* (p. 186)

The high degree of autonomy which characterizes teaching is unusual in a bureaucratic organization. This is generally referred to as the "structural looseness" of schools (e.g., Bidwell, 1965; Weick, 1976). Schools are divided into classrooms and, as mentioned before, once the classroom door is closed, the teacher has an uncharacteristically large amount of discretion over the way things are run. Joyce, Bush, and McKibbin (1981) found that teachers very rarely visit each other in their classrooms and, in most schools, are rarely visited by administrators.

Hersh et al. (1981) recognize the implications this pattern has for planned change efforts that might constrain teacher autonomy:

> *(T)eachers have traditionally had extensive autonomy in the instructional realm and in decisions regarding curricula used in their own classrooms. The push to maximize student achievement may dictate greater administrative control over classroom instructional practices. This in turn may threaten teachers in the exercise of authority within their classrooms. Given the increasing concern of teachers' groups with autonomy and control over work life, these conflicting interests and the resultant tensions may prove to be an important area for research.* (p. 35)

Weick (1976) refers to the uncharacteristically high degree of autonomy teachers generally have as the "loose coupling" of educational organizations. "By loose coupling, the author intends to convey the image that coupled events are responsive, but that each event also preserves its own identity and some evidence of its physical separateness" (p. 3). In the case of schools, classrooms are loosely coupled with each other as well as with the principal's office, the counselor's office, etc. Thus, the attachment that exists among teachers and between teachers and principals "may be circumscribed, infrequent, weak in its mutual effects, unimportant, and/or slow to respond" (p. 3). Corwin and Wagenaar (1976), in their study of teachers in 40 schools, found support for the loosely-coupled nature of schools. Results of their study indicated that teacher solidarity does not increase with experience as one would expect when interaction/communication is not constrained. This is consistent with findings from Lortie's (1975a) study of 94 teachers in the Boston metropolitan area. Further support comes from a study of gifted teachers in Illinois. Here, Hotvedt (1973) found that 80 percent of the teachers studied had less than an hour a day, including lunch, to talk with other teachers. The organization of school activities, which tends to isolate teachers in individual classrooms, does not provide regular opportunity for teachers to interact with one another and with other staff on a professional basis.

The loosely-coupled nature of schools presents a problem when it comes to implementing changes. In order for a complex (highly specialized) organization to be "effective," organizational functions must also be integrated (e.g., Lawrence & Lorsch, 1967). As we shall see later in this document, successful change strategies either implicitly or explicitly tend to focus on ways of "tightening up" the loosely-coupled nature of schools.

Organizational Climate

School climate has been defined in a number of different ways. One definition "refers to the attitudes, beliefs, values and norms that characterize the social system of a school" (Brookover & Erickson, 1975, p. 360). Forehand and VonGilmer (1964, p. 5) describe climate as consisting of measurable properties that distinguish the organization from other organizations, are relatively enduring, are experienced by most organizational actors, and influence organizational actors' behavior in the organization (also see Zigarmi, 1981).

Tye (1974) describes the phenomenon more explicitly:

> *When an individual visits a school for the first time, he develops, almost immediately, a feeling about the school. This feeling is shaped by what he views. The hallways are empty, or they are bubbling with noise. Students sit quietly at desks, or they move about in various informal arrangements. Expressions are solemn, or there are smiles and laughter. Voices are shrill, threatening, and defensive, or they are soft, supporting, and questioning. Room and hallway environments are stark, or there is a profusion of children's work, exhibits, and plant and animal life.* (p. 20)

Thus, climate may be defined as a certain "tone" or "atmosphere" (e.g., Tagiuri, 1968) which results from the interaction between teachers, students, and principals (e.g., Chamberlin, 1971) and which consists of attitudes, beliefs, and norms (e.g., Brookover & Erickson, 1975; Kelley, 1980).

Good climates. There have been many attempts to distinguish between "good" and "bad" climates and between "healthy" and "not healthy" climates. Kelley (1980) distinguishes between good and bad climates on the basis of how well outcomes meet the expectations of organizational participants. Similarly, Ogilvie and Sadler (1979) report that perceived school effectiveness is positively related to perceived school climate. Zigarmi (1981) defines a "healthy" climate as one in which problem solving is facilitated by organizational actors' sense of a common purpose and personal satisfaction.

Bebermeyer (1982) in reviewing research on school climate, identifies twelve factors associated with "good" climate:

1. Clear expectations by teachers that all students can be taught and none will fall below minimum levels of achievement.

2. Expectations by students that they can learn and a perception by students that their efforts control their achievement.
3. Tendency on the part of the staff to treat students equivalently rather than dividing them by ability.
4. Adherence to mastery learning concepts.
5. Acquisition of basic skills taking precedence over other school activities.
6. Tendency to use cooperative team learning techniques to promote peer instruction, motivation, and integration.
7. Frequent monitoring of pupil progress in relationship to instructional objectives—greater reliance on achievement test data as prescriptive.
8. Orderly, relatively quiet, well-structured milieu conducive to maximum engagement time.
9. Strong leadership from administration; involvement of principal in instructional program.
10. Staff norms for collegial work and continuous improvement.
11. Recognition for achievement and positive behavior.
12. Parent involvement and reinforcement of expectations for student achievement.

Howard (n.d.) suggests that symptoms of a negative climate include discipline problems, absenteeism, alienation, and apathy. Howard (1981a, 1981b) reports the results of two successful attempts in Colorado to improve school climate.

Measuring school climate. There are a number of ways to go about measuring school climate. Deer (1978) identifies four methodological approaches to study organizational climate: systematic field observation (e.g., case studies), summarizing the perceptions of individuals in the organization (usually by averaging scores), application of objective indices (e.g., size of workforce, ratio of salaried to wage employees, participation by employees in decision making, and extent of union membership), and the experimental manipulation of the work environment (usually by providing different leadership styles). In schools, climate is generally assessed by the second of the above four methods. (For descriptions of the specific instruments used to measure climate, see Anderson, 1982; Bebermeyer, 1982.)

Since organizational climate tends to be measured in terms of individual actors' perceptions, Joyce and Slocum (1982) suggest a variable besides the psychological (individual) and organizational dimensions upon which investigators tend to focus. This "new" variable is the psychological-organizational discrepancy which exists between the organizational climate (an aggregated variable) and an individual actor's perception of it.

Subsystem climates. Recently, the issue has been raised whether organizations have more than one climate (Johnston, 1976). Powell and Butterfield (1978) state, "An organization is considered to have subsystem climates whenever at least one group (subsystem) of employees has a different perception of the organization's climate than those employees outside the subsystem" (p. 153). If organizations do tend to have more than one climate, then identifying these subclimates may provide more explanatory power than measuring one climate. Multiple climates would be identified by consensus (Joyce & Slocum, 1979; Joyce & Slocum, 1982; Schneider & Snyder, 1975), and may be of departments, work units, or informal groups of organizational participants. Thus, individual classrooms may have climates. Hofstein, Glugman, Ben-Zui, and Samuel (1980) allege that classroom climate may be a key variable in the assessment and prediction of student achievement.

Stewart (1979) states:

> *Because of the all embracing nature of school climate, it is possible to measure separate aspects of the whole. For example, the whole school could be assessed for its organizational effectiveness, samples of classroom instruction made, reports from groups within the school evaluated, levels of aggression collated through observation, a study of the "underlife" recorded or perhaps an appraisal of goal achievement made.* (pp. 149-150)

Numerous studies suggest that classroom environments may vary by subject matter (e.g., Astin, 1965; Hearn & Moos, 1978; Randhawa & Michayluk, 1975).

Another way in which subsystems may be bifurcated is by position in the hierarchy of authority. For example, Ellett, Payne, Masters, and Pool (1977) found that teachers' and students' perceptions of climate were independent of one another (see also Wiggins, 1972).

Whether attention is focused on "school," "subsystem," or "classroom," the notion of climate is quite complex. At the school level, studies have shown that elementary schools tend to have better climates than secondary schools (e.g., Berman & McLaughlin, 1976; Porter, 1980). In fact, in longitudinal analyses, school climate has been found to decline as cohorts progress from junior high to senior high school.

An Overview of Educational Planned Change

Planned change is a deliberate attempt to improve existing conditions through the adoption of new products, new technologies, or new ideas. As used in this section, planned change is synonomous with the term innovation.

Stages of Planned Change

Planned change encompasses various stages which include recognition and assessment of need, initiation, adoption, implementation, and evaluation. A planned change effort, when successful, results in the institutionalization of new ideas, behaviors, attitudes, etc. That is, the desired change becomes successfully incorporated within the system.

Recognition and assessment of need. The recognition and assessment of need is sometimes broken down into two distinct stages. However, we will consider recognition and assessment to be essentially inseparable, as they are the foundation upon which planned change efforts are built. The recognition and assessment of need refers to the emergence of a threshhold awareness of a problem or inconsistency and a thorough analysis of the components of the identified need. (The awareness may be nurtured by actors or groups within or outside the given system.)

Assessment refers to the determination of whether or not the identified need warrants change. (E.g., given that the identified need is embedded in and related to a complex matrix of organizational and individual factors, is it reasonable to expect improvement?) Baldridge and Deal (1977) refer to this situation as the "iceberg phenomenon." That is, often an apparent problem is only symptomatic of more pervasive problems. If change efforts are aimed at "treating" only the apparent problem, the underlying problems will continue to persist. Should these efforts be successful, which is unlikely, the "condition" generally returns in short order.

In addition, it must be noted that simply because the perceived need for change is high in a given organizational context, conditions are not necessarily facilitative of change efforts. For example, a study by Duncan (1972) examined the relationships between the following three variables: perceived need for change, perceived openness to change, and perceived potential for change. Duncan found that there was a negative relationship between perceived need for change and openness to change ($r = -.26$ $p < .01$) and between perceived need for change and potential for change ($r = -.57$, $p < .01$). Zaltman and Duncan (1977), in reviewing Duncan's study, state:

> *The results say that the more personnel perceive that there is a need for their department to change to meet the increased demands of society, and so on, the less do they perceive that their department is really able to deal with change. The need for change may create anxiety with the result that organizational personnel feel that they cannot change.* (p. 79)

Thus, even though the perceived need for change may be high in an organization, the organization may be unable to deal effectively with the needed change.

Also to be considered in this initial stage are the various ways that change might be accomplished (e.g., what resources are available, where might they be best spent, etc.). In addition, if the identified need spans more than one organizational setting, a comprehensive diagnosis of the problem should be undertaken as it pertains to the particular organizations of interest. Thus, the situation should be assessed as it presents itself to a given context at a given time.

Initiation. Initiation of a planned change refers to the decision by those involved in the previous stage to attempt to improve the assessed situation. This stage involves the *preliminary* selection of: goals and objectives; a product, technique, or service; strategies and tactics; and identification of key organizations, groups, and/or individuals. Take note of the use of the word "preliminary" in the preceding sentence; it is likely that many of these components will be modified as a result of the implementation and evaluation processes.

Adoption. Adoption of a planned change effort reflects the decision by an individual, group, or organization to utilize a new product, technique, or service. Adoption is the starting point of the implementation process. The Rand studies, commissioned in 1974 by the United States Office of Education, identify two types of adoption, "opportunism" and "problem solving" (Berman & McLaughlin, 1976, p. 351). Innovations characterized by an opportunistic adoption process involve a response to the availability of funds and other resources and tend to be less committed to the change. In contrast, innovations reflecting a problem-solving adoption process emerge from specific problems that, it has been decided, need to be remedied. Thus, those involved in the adoption are not always those involved in the "recognition and assessment of need" and the "initiation" stages. Organizational participants who "opportunistically" adopt an innovation will probably not have been involved in the preceding two stages.

Implementation. Implementation refers to the "process" of innovation during and after the initial decision to adopt. As Fullan and Pomfret (1977) define it, implementation "refers to the actual use of an innovation or what an innovation consists of in practice. This differs from both intended or planned use and from decision to use, the latter being defined as adoption" (p. 336). In a sense, implementation is the adaptation of the innovation to fit the given context. The final state of implementation is the *institutionalization* of the innovation. This means that the desired change becomes incorporated as part of the existing power structure of the organization.

Evaluation. Evaluation involves the assessment of the extent to which improvement has been made. Evaluation may be an ongoing practice during implementation, or it may be an assessment made after a given point following the adoption of the innovation. It may focus upon the extent to which implementation practices approximate the objectives (e.g., how often is an innovative teaching method used in the classroom?) or it may emphasize desired outcomes (e.g., did student achievement scores increase after a new teaching method was made available?). We will consider some of the evaluation issues later in this section when we examine the measurement of innovations.

Individual behavioral changes. At the level of the individual, a planned change effort may be described as a model of influence with an emphasis on behavioral change of personnel in an organization. Wood, Nicholson, and Findley (1979, pp. 58-59) propose the following stages in which such behavioral changes are desirable:

1. Unfreezing: an alteration of the forces acting on the individual, such that his/her stable equilibrium is disturbed sufficiently to motivate him/her to want the change; this can be accomplished by either increasing the pressure to change or by reducing some of the threats or obstacles to change.
2. Changing: the presentation of a direction of change and the actual process of learning new attitudes and skills. This includes two dimensions:
   a) Identification: the person learns new attitudes by identifying with and emulating some other person who holds these attitudes or,
   b) Internalization: the person learns new attitudes by being placed in a situation in which new attitudes are demanded of him/her as a way of solving problems.
3. Refreezing: the integration of the changed attitudes into the rest of the personality and/or into ongoing significant emotional relationships. (Refreezing is at the individual level what institutionalization is at the organization level.)

What is essential when considering a model such as the one just discussed is the recognition that individual behavioral changes must be supported by organizational and environmental conditions which are not hostile to the desired change. That is, for the processes of "Unfreezing," "Changing," and "Refreezing" to occur successfully, there must be adequate support and complementary change occurring within the organizational context.

Perspectives on Planned Change

Planned change has been viewed from many diverse perspectives. These perspectives have tended to be refined or redefined through the course of time as investigators have come to realize the complexity of planned change efforts. It is obvious as one reads through the literature on planned change that at present there is no synthesized framework from which to look at planned change efforts. At best, there are certain trends that can be noted. For example, studies of innovations have tended to move away from their earlier emphasis on *adoption* and have come to focus upon *implementation.*

The different perspectives on change affect the way in which change is studied. Different methodologies are used, different variables are identified as important, and different types of outcomes are emphasized. This makes comparison across studies difficult, and hence, any generalizations made must be regarded as tentative. Before considering these studies more specifically, let us consider some of the ways in which change has been conceptualized.

Parker (1980) has recounted the historical development of the planned change literature. According to Parker, studies on planned change had their beginning in the 1940's with attempts to understand the diffusion process of technological innovations. More specifically, the purpose was to examine how Agricultural Extension agents were able to convince farmers to adopt an innovation such as hybrid corn. Later on, this literature began to encompass studies of how doctors adopted new medical techniques or drugs. What is characteristic of these studies, as well as the early studies on educational innovations, is that innovations were defined as adoptions. That is, the focus of these analyses was the initial adoption of the innovation, and in particular, the initial resistance to the change effort. Studies focused on tactics that could be used to overcome initial resistance (e.g., peer pressure, leader-follower phenomena, comparative information, appealing to the individual's self-esteem, and other marketing strategies). Thus, the early studies of planned change not only focused on *individuals* rather than organizations as the adopters of innovations, but they also assumed that once the innovation was adopted, improvement was guaranteed. More recently, however, it has been recognized that adoption is only the initial stage of implementation (e.g., see Berman & McLaughlin, 1978; Gross, Giacquinta, & Bernstein, 1971). As Parker (1980) states, "Adoption does not guarantee implementation and implementation does not guarantee institutionalization" (p. 432).

Once investigators surpassed their emphasis on the adoption of innovations, they began to attend to the *process* of implementation. Farrar, Desanctis, and Cohen (1980) have assessed the implementation research in education with respect to federal initiatives. They have identified three conceptualizations of the implementation process: center-to-periphery, bilateral, and evolutionary.

Center-to-periphery model. The center-to-periphery model emerged from the numerous federal initiatives which attempted to improve the quality of schooling without much success. An example cited by Farrar et al. (1980) describes the supposed failure of Title I of the Elementary and Secondary Education Act of 1965, which provided sizable federal funds to school districts to improve the education of disadvantaged youths. Evaluation requirements built into the law failed to show that program efforts resulted in student achievement gains. It appeared that federal funds were not being spent as intended.

Early Title I reviews found that there were two kinds of breakdowns in moving federal policy to local implementation: 1) federal money was not being spent as intended, and 2) when spent as intended, it yielded few results. These findings, based upon the center-to-periphery model, perceived the local arenas as passive hosts of federal reforms. In addition, federal goals were considered to be both clear and valid. Eventually, the simplicity of this view was called into question. More complex evaluations of attempts to improve student achievement found not only that interpretations of the various models attempting to improve student achievement had varied by site, but also that the developers' ideas about them had changed with time. Furthermore, it was found that users and developers often disagreed over what constituted success. Thus, the simplicity of the center-to-periphery model was found not to be an adequate representation of reality.

Bilateral model. The second model described by Farrar et al. (1980) conceives of implementation as a bilateral process. An example described by the authors is that of the Rand studies which envisioned local districts as active participants in federal programs. Each local arena had needs and preferences of its own, suggesting the importance of local contribution for implementation. Rand found that motivation, commitment, and a sense of local ownership were essential components of program success. Thus, implementation of educational innovations:

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> *is essentially a two-way process of* adaptation, *in which the innovation strategy is modified to suit the institution, and the institution changes to accommodate the innovation. Therefore, implementation of educational innovation can be thought of as an* organizational *process whose end product . . . would be an altered institutional arrangement and an innovative strategy modified to suit that arrangement.* (Berman & McLaughlin, 1974, p. 10)

Defining implementation as a bilateral process meant that local districts were no longer perceived as passive hosts of federal reforms. Even though the Rand studies shed new light on the complexity of planned change efforts, as Farrar et al. (1980) contend, they still assumed that federal goals were primary. Hence, implementation was still considered to be the local installation of federal initiatives.

Evolutionary model. The third model identified by Farrar et al. (1980) conceives of implementation as evolution. The distinguishing feature of this model is that it recognizes that local forces may be *as important* as federal ones in shaping the innovation. The implications of this are that "implementation could look not at all as it does from the center—as a collection of local obstacles to central programs and priorities, the criteria by which success is judged" (Farrar et al., 1980, p. 80). From an evolutionary viewpoint, implementation is a complex process in which goals and the means of achieving them are revised continually. Thus, implementation is, in effect, a political process. Implementation from this perspective is a process of negotiation in which the interests of various groups of actors involved in the implementation process come to redefine the change effort over time.

Although the models defined by Farrar et al. (1980) describe the implementation of federal programs, the models are equally insightful when applied to intraorganizational change efforts. Thus, organizations are not cohesive social units characterized by homogeneous goals. Instead, at any given point in time, an organization tends to be characterized by multiple interests and goals which may or may not conflict with one another. This situation is described by House (1974):

> *The school is rather, a collection of cohesive active groups, coalitions that sometimes cooperate and sometimes compete with one another. Most groups actively search for new means of advancing their own interests and new ways of defending what they have. Most groups actively search for new innovations in order to advance . . . Other groups resent such changes. A new program, while it may be an improvement, most certainly means some encroachment upon old perogatives; when program change is significant, it requires reallocation of resources, and conflict is inevitable.* (p. 52)

Product perspective. Another way in which planned change may be conceptualized is as either a "product" or a "process" (Davis, Strand, Alexander, & Hussain, 1982). Fullan and Pomfret (1977) have described the product perspective "as a 'black box' where innovations entering one side somehow produce the consequences emanating from the other" (p. 337). When investigators focus on innovations primarily as products, they attempt to identify the characteristics of organizations that may be related to their adoption and use. The general approach taken by these researchers is to look for consistent relationships between various *structural* features of organizations, such as size, degree of decentralization, specialization, and the tendency to adopt new products or employ new techniques. The product approach to planned change tends to incorporate quantitative methods and to compare change efforts in numerous organizations. The independent variables tend to be the structural features of the organizations.

Process perspective. In contrast to the product definition of planned change, the process perception involves the element of time (often defined in terms of stages). What becomes important to proponents of this orientation are the "behaviors and incidents that occur over time as an individual or organization considers, develops, or implements some idea or approach" (Davis et al., 1982, p. 570). Thus, for example, relational types of variables are considered important (e.g., worker/work group satisfaction, communication patterns). These analyses tend to be case studies which use a qualitative methodology. The process model of planned change is similar to the bilateral and evolutionary processes described by Farrar et al. (1980), in that it envisions the context in which the change occurs as active rather than passive in nature.

Variations and reorientations. Planned change may also be conceived of as the extent to which the change effort requires alterations in the existing structures, climate, etc., of the organization. Normann (1971) distinguishes between two types of planned change efforts: "variations" and "reorientations." Variations are minor changes which do not mandate drastic alterations of existing policies and power structures. Quite to the contrary, reorientations require new types of specialized knowledge and/or task systems which entail significant structural and behavioral changes. As Normann recognizes, often reorientations become variations through the process of implementation. Individuals involved in the change effort come to redefine goals and tactics to be in harmony with their everyday experiences. This is related to an issue mentioned previously. That is, planned change is by definition a normative phenomenon. Some individuals or group of individuals determine that existing conditions should be improved. The normative nature of planned change means that the desire to change is founded upon certain values and beliefs which may or may not be shared by all those ultimately involved in the change process. As House (1974) recognizes:

> *Those who invent and develop innovations often expect a new innovation to be recognized on its technical merits and to sweep through a school. Actually, any innovation has meaning only within a particular social structure, and the social structure of schools is such that an innovation pandemic is unlikely.* (p. 53)

Thus, the meaning and desirability of planned change efforts will vary with different individuals and groups of individuals. It cannot be assumed that just because an innovation has been identified as worthwhile by a certain group of individuals (e.g., administrators) that it will be perceived as worthwhile by other groups of individuals who will be affected by the change process. Porter (1980) states, "it is quite apparent that when considering different people's perceptions of the implementation of an innovation, if there are ten people involved there are ten different definitions of the situation" (p. 83).

Macro- versus micro-level changes. The differences in perspectives of various groups pertain in part to differences in scope. As an example, contrast the perspective of school administrators, who are often initiators of innovations, with the perspective of teachers. School administrators tend to adopt a macro-level approach which sees change as beneficial to the organization. Teachers, however, tend to have a micro-level perspective of change. That is, they see it in terms of what it means for themselves and their classrooms. Although the teacher does not usually initiate an innovation, "he [/she] almost always decides whether he [/she] will implement it or, more precisely, the degree to which he [/she] will use it" (House, 1974, p. 67).

Commonalities of perspectives on planned change. It should be readily apparent from the preceding analysis that at present, there is no synthesized perspective on planned change. We can, however, note several commonalities in the literature. From our brief overview of perspectives on planned change, three trends can be distilled:

1. Planned change has been recognized as an organizational rather than an individual phenomenon (e.g., Baldridge & Deal, 1977; Fullan & Pomfret, 1977; Gaynor, 1977; Kozuch, 1979; Porter, 1980). Changes in any one part of the organization will result in changes in other parts of the organization. For example, the success of a technological innovation is always accompanied by structural changes.
2. It has been recognized that perceptions and meanings of planned change efforts will vary with different actors and groups of actors within an organization.
3. Research suggests that planned change is a dynamic process which is continually being negotiated and redefined in the implementation process.

It is important to keep these tenets in mind as we review the empirical studies of the determinants of successful innovations.

Empirical Studies of Planned Change

At this point, we will consider the results of planned change efforts. We have already cautioned that interpretations across studies must be made tentatively. With this in mind, we will consider whether there is evidence that certain properties of the innovation, the structure (formal and informal) of the organization, school climate, or the environment are conducive to or inhibitive of educational planned change efforts. Because studies suggest that "different factors appear to have greater or lesser effect on the innovation process depending on the stage under consideration" (Davis et al., 1982, p. 583), to the extent possible we will distinguish between the initiation, adoption, and implementation stages of an innovation.

Properties of the innovation. When consideration is given to the relationship between the outcome and the properties of an innovation (e.g., methods of implementation, substantive concerns, size of budget), studies suggest that attempts at educational improvement tend to fail for adoptive rather than substantive reasons (e.g., Charters et al., 1973). For example, Porter (1980) conducted a study of 95 innovations at the school level in Australia. She found, in general, that the actual *kind* of project was less important to effective implementation than the *way* in which it was implemented. In a recent Rand report, Berman and McLaughlin (1978) analyzed 293 innovations funded by U.S. federal dollars in 18 different states. The results of this analysis were consistent with Porter's finding.

Fullan and Pomfret (1977) analyzed 15 case studies on implementation and concluded that perceived complexity of an innovation is negatively related to its success. Porter (1980) also found that complexity in either objectives or implementation strategies had a negative association with success. Crowther (1972) found that the perceived complexity by teachers of a new social science curriculum was negatively related to its use (see also Rogers and Shoemaker, 1971).

Berman and McLaughlin (1978) found that more expensive projects were not more likely to be successful than were less expensive projects. Porter (1980), however, reports a positive relationship between budgetary size and implementation success. Porter suggests that her positive finding may be due to the fact that the innovations she studied had smaller budgets in general than those in the Rand studies.

Leadership of the principal and district administrators. Earlier we discussed the role of the principal as leader and how this role was associated with such factors as school effectiveness, "good" climate, and student achievement. Presently, we will consider the leadership role of the principal as it relates to planned change efforts. As a general comment on the principal's role, Drake and Miller (1982) claim, "As we move into the '80's, the principal's prime objective should be to create an 'our school' concept—a school with which citizens, teachers, staff and pupils identify" (p. 25). Thus, it falls upon the principal to facilitate and maintain the school as a cohesive unit. This is no small task given the loosely-coupled nature of schools.

Overall, studies suggest that the principal plays a vital role in change efforts (e.g., Berman & McLaughlin, 1976; Keys & Bartunek, 1979; Porter, 1980; Rosenblum & Jastrzab, 1980). It appears that the leadership function of the principal is a crucial element in tightening up the "loosely-coupled" nature of schools. However, in order for the principal to be effective, he/she must be actively involved. As Conner and Gingrich (1975) recognize, the principal *cannot* be an effective change agent if he or she is an administrator who is primarily "maintaining a smooth operation, status quo in procedures and successful goal achievement" (p. 7). It is the principal's active involvement, rather than his/her verbal support, that is important to secure the support of organizational participants (in particular, teachers who enjoy a large degree of autonomy). If the principal is averse to the change effort or even if he/she is neutral, there is a greater likelihood of the innovation failing. A study by Nicholson and Tracy (1982) of 20 elementary school principals and 191 teachers found that the principals' knowledge of the change and clarity of role was favorably related to the success of implementation of a curricular change. They also found that the same factors (i.e., knowledge and clarity) were positively related to teachers' attitudes. Nicholson and Tracy suggest, "a distinct emphasis should be placed on the involvement of the principal in the change process" (p. 72). They further suggest that the principal should be notified of change efforts before informing the rest of the school so that he/she can "be ready to effectively transmit the change to teachers." Nicholson and Tracy contend that the principal can make a difference in planned change efforts.

Corbett (1982) analyzed data from a three-year study of external technical assistance for curriculum improvement. He found that desired classroom changes rarely became permanent unless teachers continued to receive incentives *after* the implementation. Furthermore, Corbett found that "the responsibility for insuring that incentives are available falls on the building principal" (p. 190). By providing incentives (e.g., attention, encouragement, recognition of effort) principals were able to maintain changed behavior. The study further suggests that, just as principals were the key functionaries in providing incentives for teachers, the central office staff was important for providing incentives to principals in the district.

Active support from the superintendent and other central office staff is also critical to planned change efforts. Numerous studies have shown this to be the case (e.g., Keys & Bartunek, 1979; Runkel & Schmuck, 1974, 1976; Schmuck, Murray, Smith, Schwartz, & Runkel, 1975). Milstein (1978), for example, found that mere verbal support of central office staff was not enough. Rather, their active involvement in the change process was required. Perhaps the most important function a superintendent can perform is described by Heckman, Oakes, and Sirotnik (1983). They argue that a superintendent should "assume a supportive role

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in working with principals and helping them work with teachers to describe conditions, infer problems, and develop alternatives to the problems identified" (p. 31). This means that the superintendent and other central office staff *do not prescribe* what changes are to be made. Rather, the superintendent and his/her staff provide support to the principals and teachers at individual schools, so that each school can critically examine the problem areas at the individual school. When solutions are proposed by a particular school, the superintendent can facilitate change by being supportive.

Despite the importance of the central office staff, the role of the principal is primary. Williams (1980) identifies three aspects of the principal's role as important for implementing educational change: "knowledgeable colleague," "process monitor," and "supportive leader." As a knowledgeable colleague, the principal is thoroughly acquainted with the nature of the change, the outcomes desired, and the specific implications for school, classroom, pupils, and teachers. As process monitor, the principal understands the school as a social system. The principal works to develop a decision-making structure that allows those who will be affected by the innovation to openly discuss the innovation and come to a collective conclusion about whether and how to adopt it. The process monitor acts to facilitate "mutual adaptation" so that both the innovation and school can adapt to one another. The principal, as a supportive leader, provides materials, conditions, and personnel critical for the implementation of an innovation. This may mean negotiating with central office staff or individuals and groups in the community.

A number of variables have been found to be associated with principal leadership. Analysis of eight studies (Phi Delta Kappa, 1980) found that the principal played a critical role in relation to student achievement. The variables that related to principal effectiveness include: 1) staff input into decision making, 2) decentralized staff selection, 3) the principal's interest in staff and students, 4) high expectations, 5) outcome-orientation, 6) clear communication of expectations, and 7) support of teachers on disciplinary matters concerning students. The notion of "clear communications" is fundamental to the literature on good school climate, effective schools, and the leadership role of the principal. We will next consider the importance of school climate.

School climate. In the discussion of the organizational climate of schools, it was noted that good climate is associated with a number of variables including school effectiveness, principal leadership and student achievement. Good school climate is also related to greater success in planned change efforts (e.g., Berman & McLaughlin, 1976; Comer, 1980; Porter, 1980). Schienfeld's (1979) study found that three organizational climate variables were related to the success of a change effort. These were quality of working relationships among teachers (i.e., collaboration, trust), participation in decision making by teachers, and the relationship between the principal and teachers. In Comer's study of a school in New Haven, Connecticut, he found that changing social and psychological conditions in the school resulted in a more facilitative school climate and, in turn, an improvement in student achievement scores. Schienfeld suggests that for change efforts to be successful, they should intervene at three places simultaneously: school climate, the classrooms, and school-community relations.

A key problem with the literature citing the relationship between good climate and successful change efforts is that it fails to identify ways in which climate can be improved in order to facilitate change. Thus, even though it is recognized that good climate is conducive to planned change, there is an inadequate consideration of what to do to improve climate in order to facilitate change. (Colorado has implemented a number of school climate improvement programs. However, probably because climate is such a complex concept, its many dimensions have not been adequately explored. The implications of this are that at present little is known about *how to improve climate to facilitate change efforts.*)

Strategies and Intervention Tactics

Before commencing with an overview of various strategies and intervention tactics utilized in planned change efforts, it is necessary to define what is meant here by the terms "strategy" and "tactics." By strategy we are referring to an overall conceptual scheme which circumscribes various means of intervention. The term tactics refers to the specific means of accomplishing a desired end. Strategies include such things as Management by Objectives, Planning-Programming-Budgeting Systems (and Zero-Based Budgeting), and Organizational Development. Intervention tactics include such devices as t-groups, sensitivity training, encounter therapy, participatory planning, in-service training, and survey feedback.

The distinction between strategies and intervention tactics reflects the central thesis of this paper. That is, in order to implement or assess planned change efforts, it is essential to take into account the organizational context. Indeed, studies have shown that when intervention tactics (e.g., t-groups, sensitivity training, encounter therapy) are used to alter the behavior of individuals in organizations without consideration of the context within which individuals work, they tend to be largely unsuccessful (Hall, 1977, p. 297). This is because the "changed" individuals go back to their original situations where other organizational actors and the organization itself have not changed. What eventually happens is that the "changed" individuals revert back to their pre-change behaviors. A study by Carlson (1965) illustrates what happens. Carlson asked teachers and principals about their use of programmed instruction. He found that teachers and principals reinterpreted the program differently than did the program initiators. Thus, for example, programmed instruction was designed to let each student work at his/her own pace, but this resulted in vast differences in the amount of material covered by students. Teachers had problems with this and therefore tried to compensate by restricting the output of the fastest students (and requiring homework of the slowest students). Carlson contends that what happened was that through reinterpretations, programmed instruction was transformed into regular classroom instruction. This is an example of a "reorientation" which became transformed into a "variation" (Normann, 1971)—and a slight variation at that.

Conceptual Overview of Strategies

Zaltman and Duncan (1977) identify four general types of change strategies. These include facilitative, reeducative, persuasive, and power strategies. Since strategies are, in essence, schemes by which power is exercised by an actor or set of actors over another actor or set of actors, it is useful to consider a conceptual model of power relationships and involvement patterns which oversees the strategies discussed by Zaltman and Duncan. Etzioni (1975) has identified three types of power relationships, each with a distinctive pattern of involvement (or compliance mode). The three power bases and associated involvement patterns are: 1) normative (power base)-moral (involvement); 2) remunerative-calculative; and 3) coercive-alienating. To this tripartite scheme, a fourth category can be added: expert power (French & Raven, 1968). We will consider each of these in reference to planned change efforts.

A normative-moral situation involves the internalization of values, beliefs, attitudes, etc. In a change attempt based on a normative power base, actors involved in the change process support its goals and objectives because they believe in it. Their moral involvement means they are committed to the change for affective reasons.

In a remunerative power relationship, changes occur because of the incentives provided. Thus, compliance to the desired change is based upon calculative reasons (i.e., the actors assess the situation in terms of a means-end relationship). Often when a change strategy is based upon a remunerative power base, it is assumed that getting actors to first change their behaviors by providing them with incentives is only an initial step. Once the behavioral changes have been accomplished, it is assumed that complementary changes in attitudes and values will follow so as to be consistent with the changed behaviors. If this moral involvement does not emerge, behavior will likely revert back to the pre-change state once the incentives are removed.

A coercive power base refers to a context in which change is forced upon a target group of actors. The associated involvement pattern is one of alienation. There is no moral commitment to the change, and constant monitoring is required to ensure the change is maintained.

The fourth power base is that of expert power. In this situation, the power holder is assumed to possess special knowledge. Thus, in the context of a change effort, the target actors support the change because they believe in the knowledge and information possessed by the power holder. The involvement of the target actors is considered objectively derived.

Figure 3 shows the relationship of the power-base involvement model to the change strategies identified by Zaltman and Duncan (1977). Facilitative strategies are those schemes which make easier the implementation of changes by and/or among a target group of actors. The use of facilitative strategies requires that the target group both acknowledge that a problem exists and be in general agreement (although not necessarily consensus) that some type of remedial action is required. Facilitative strategies are appropriate when an openness to change exists. Included among the list of facilitative strategies are those which are oriented toward self problem solving. Facilitative strategies are particularly useful when the magnitude of intended change is great. Facilitative strategies are not appropriate when there is considerable resistance to change. Zaltman and Duncan point out that different subgroups within a system may require different facilitative techniques. This would be determined from a preliminary analysis of the particular system.

Figure 3

RELATIONSHIP OF POWER BASES AND CHANGE STRATEGIES

Power Base	Compliance/Involvement	Strategy
Normative	Moral	Facilitative
Remunerative	Calculative	Persuasive
Coercive	Alienating	Power
Expert	(Objective)	Reeducative

Reeducative strategies are often considered to be the most neutral of all change strategies. In this type of strategy, it is assumed that the relatively unbiased presentation of fact serves as the basis for rational action. That is, it is assumed that humans are rational actors and when presented with new (better) facts, they will adjust their behavior accordingly. Often this type of strategy involves the "unfreezing" of previous knowledge, skills, attitudes, etc., and the learning of new ones.

Reeducative strategies are appropriate when time is not a pressing consideration. They may also be used in advance of an innovation or in advance of the use of a power strategy. In the latter situation, reeducative strategies serve to change attitudes and beliefs so that they are consistent with those required by the proposed change. In addition, reeducative strategies may be used to create an awareness of problems. In this case, reeducative strategies may be followed by more persuasive ones.

Persuasive strategies, in contrast to reeducative strategies, attempt to bring about change through *the biased manner* in which the message is *structured* and presented. This type of strategy attempts to create change by reasoning, urging, and providing inducements.

An issue evoked by the use of persuasive strategies concerns the ethics of providing target groups with "select" information or delivering the message in such a way that its contents will be perceived in a certain manner by target groups. Zaltman and Duncan (1977) cite an example of the ethical issues related to the use of a latent persuasive strategy. Their example is that of a Roman Catholic priest working in the Philippines who made a movie which overtly appeared to be unrelated to family planning. However, as Zaltman and Duncan explain:

> *Numerous well-planned latent messages advocating family planning were structured into the film but not to a degree to which a relatively unsophisticated, youthful audience would perceive the family planning messages to be the main concern of the film. The film used famous Filipino actors and actresses who were assigned to specific roles on the basis of careful research into the popular images of the players. The specific themes and their development were well researched and pretested in the best marketing research tradition.* (p. 134)

The ethical issue involved in the above example concerns the deliberate "manipulation" of the target group by the change agent. To state it differently, it might be asked whether it is ethical to promote change without a target group's awareness. This issue has been brought to the attention of the prime users of persuasive strategies (namely, large corporations) who, through advertising, try to "sell" their products to the public. Various consumer groups have contested the use of overly persuasive strategies.

A range of persuasive strategies exists. Some are quite manipulative, whereas others are simply suggestive. Persuasive strategies may be useful when there is a low commitment to change within the target system. Persuasive strategies are also useful when the magnitude of change is great. That is, the greater the risk associated with the change effort, the more likely it is that greater numbers of persons and groups will resist the change. In this type of situation, a persuasive strategy may be desirable.

Incentives are an example of a specific tactic which would fall under the realm of persuasive strategies. Since incentives play a major role in some change efforts, we will consider them further at this time.

Incentives may be classified in terms of whether they are: 1) extrinsic-intrinsic; 2) immediate-deferred; 3) individual-group; and 4) positive-negative. Extrinsic incentives "are, in the main, transferable from one occupant to another" (Lortie, 1975b, p. 258). In contrast, intrinsic incentives differ according to what a given actor values in a given situation.

Immediate incentives are those which are received immediately. Deferred incentives, in contrast, are dispersed after a certain amount of time has elapsed. For example, incentives could be given to actors at the time they enroll in a program. On the contrary, they may be given after each training session is completed or when the entire program (multiple sessions) has been completed. Incentives may be oriented toward individual actors or toward a group of actors. Incentives may be given to individuals on the basis of their performance. Or, in contrast, incentives may be given to an entire group based upon how the group as a whole performs or upon how individual actors, as representatives of the group, perform. Finally, incentives may be either positive or negative, i.e., they may act to encourage or discourage certain behaviors, attitudes, etc.

Power strategies, unlike persuasive strategies, involve the use of coercion to achieve the desired end. The strength of the power is related to the degree of dependency between the change agent and the target group of actors. Dependency is based upon 1) the goals controlled by the change agent and the target group's motivational investment in these goals, 2) the availability of alternatives to satisfy the target group's goals, and 3) the cost of alternative modes of goal attainment. When a target group is highly dependent upon the change agent, power strategies are useful. However, the target group's commitment to change will tend to be low and, as a consequence, constant surveillance will be required to ensure continued adherence to the change. Power strategies are useful when the target group's perceived need for change is low. However, the need for ongoing monitoring may result in prohibitive costs.

It is important to note that for any given effort, multiple strategies may be required. Different strategies may be required for different stages in the change process or for different subsystems of the target group. Thus, the choice of specific strategies will largely depend upon an adequate assessment of a given context.

The Individual School as the Unit of Analysis

Although it has already been determined that organizational variables are more important than individual variables in planned change efforts, the starting point in selecting a strategy requires the choice of the specific level of organizational variable with which we wish to deal (e.g., districts, schools, classrooms, subsystems). Evidence suggests the school to be the logical unit of analysis when implementing change policies (e.g., Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979; Brookover & Lezotte, 1979; Rutter, Maughan, Mortimore, Ouston, & Smith, 1979). The school is also the best focal point for in-service programs. That is, in-service programs tend to be more successful when they are school-focused in-service programs, as opposed to either curricular-oriented or district-level programs (Henderson & Perry, 1981).

Heckman et al. (1983) suggest why school-level considerations are primary:

> *Despite the considerable sameness among schools—what we might call a general schooling culture—each school has its own particular culture in which organizational arrangements, patterns of behavior, and assumptions have come into being in a unique way. While it is possible to describe cultural patterns likely to be found at all schools, these are abstractions. The local school is where social, political, and historical forces are translated into practice, and at each school that is likely to happen in different ways. Change efforts based only on an understanding of a general school culture, and not on its particular form at a local school, will ignore what is most critical: the particular structures,*

> *behaviors, meanings, and belief systems that have evolved in that school.* (p. 28)

Berman and McLaughlin (1978) contend that projects aimed at significant change cannot be implemented across a whole school system at once. Rather it is necessary to consider "the organizational and environmental idiosyncracies of the school" (Perry, 1981, p. 260). Ogilvie and Sadler (1979) report, "We are seeing in Australia today the early moves toward considering the individual school as the logical unit for innovation with all that this entails for in-service education, policy making, and organizational climate" (p. 139). Gauthier (1982) describes some of the factors involved in school-wide change:

> *Meaningful change must involve the whole school. The principal and a critical mass of the faculty must be involved and the organizational variables such as strong instructional leadership, safe and orderly environment, sense of mission (including clear, specific goals and objectives), and a systematic, schoolwide assessment of student progress must operate in a well-managed coordinated way to bring about long-term change.*

There is some evidence that in secondary schools, even school-wide change may be problematic. Porter (1980), for example, found that innovations were much more likely to fail in secondary schools. (We have already noted that school climate declines in the progression from elementary to secondary schools.)

The importance of "localizing" change efforts (albeit of a different scope) also emerged in the studies of programs which involved federal initiatives. These studies all found that it was essential that federal programs "fit" the local area (e.g., Berman & McLaughlin, 1976, 1978; Porter, 1980). Thus, change efforts must be responsive to variations in local context. In particular, when planned change efforts are large-scale (e.g., state-wide, district-wide), they must be flexible enough so as to allow the goals, objectives, strategies, tactics, and other features to be redefined and transformed into a form that is workable under local conditions. Research suggests that these "local conditions" be defined in terms of the individual school.

An Overall Strategy for Change

The following discussion of specific strategies and intervention tactics has been guided by the findings which emerged from the review of empirical studies of change. It is important to note that the strategies and intervention tactics discussed below are mere samples from a vast repertoire of those available. Selection of specific strategies and tactics will depend upon the idiosyncratic nature of a given change context. Thus, strategies and tactics which appear to work in one situation may not work in another situation. Some strategies and tactics which have a greater overall rate of success will be considered in the following pages. As an overall approach to planned change at the organizational level, studies of organizational development (OD) appear to be extremely valuable. The relevance of OD as an overall strategy is that it can be "a systematic process that creates trust among personnel while personnel delineate what needs to be examined, collect information about their school, interpret that information, develop programs, implement programs, and evaluate programs" (Perry, 1981, p. 260). The underlying values of the OD approach fit well with the various trends noted in this paper. Goodlad (1975) has argued that we need an alternative to the traditional RD & D (Research, Development and Diffusion) approach to change in schools. In the traditional RD & D approach to change, the schools are considered passive targets for innovations. This is similar to the center-to-periphery model identified by Farrar et al. (1980). The alternative proposed by Goodlad calls for change activities to take on a self-renewing orientation. That is, the school staff must continually work together to identify problems and propose solutions. Heckman et al. (1983) refer to this alternative approach to school change as the "responsive cultural perspective."

Hoy and Miskel (1982) define educational OD as "the process of changing the culture or climate of a school by applying knowledge from the behavioral sciences during a period of planned and sustained effort" (p. 344). They identify the following four points encompassed within an OD approach to change:

1. The change process is meant to change the system rather than the individual (i.e., any change in task, structure, technology and/or behavior/attitude must be considered systemically).
2. The organization's climate includes a set of learned and shared assumptions which regulate members' behavior. OD attempts to improve levels of collaboration, participation, and trust (while also reducing conflict).
3. OD involves *deliberately* planned change rather than organizational drift. Resources—time, money, energy—must be committed over long periods of time (e.g., two or three years) for serious and self-sustaining changes to occur.
4. Theories, research findings, and research methodologies are founded in the behavioral sciences.

Thus, OD is oriented toward improving interpersonal skills and relationships of organization members and, in turn, increasing organizational efficiency. A number of critics have questioned the appropriateness of using OD in educational organizations (e.g., Blumberg, 1976; Derr, 1976b). However, despite the negative reviews, the use of OD does appear to have its merits. Miles, Fullan, and Taylor (1978) studied 76 districts using OD in the United States and Canada. They concluded that the special properties of schools do not necessarily make them "unfit" for OD. Rather, schools present special problems which must be taken into account in the OD effort. Fullan, Miles, and Taylor (1980) have conducted a comprehensive review of the use of OD in educational organizations, and their findings suggest the merits of using an OD approach to facilitate planned change efforts in some schools. (Not all schools are amenable to such attempts.)

Organizational development has been utilized in public schools since the mid-1960's. Fullan et al. (1980) developed a working definition of OD from the discrepant ways in which the term has been used:

> *Organizational development in school districts is a coherent, systematically-planned, sustained effort at system self-study and improvement, focusing explicitly on change in formal and informal procedures, processes, norms, or structures, using behavioral science concepts. The goals of OD include improving both the quality of life of individuals as well as organizational functioning and performance with a direct or indirect focus on educational issues.* (p. 135)

Leithwood and Montgomery (1982a) have noted that strategies and obstacles are inseparable components. Thus, OD as a strategy can be a means of "tightening up" the loosely-coupled nature of schools, of improving school climate, etc.

Intervention Tactics

At this point a number of select organizational intervention tactics will be considered which have been utilized successfully in educational organizations. These include in-service education, participant planning and decision making, and feedback. (Note again that the selection of these specific tactics has been guided by a review of empirical studies regarding change.)

In-service education. In-service training, one intervention tactic, appears to be conducive to innovation efforts. Based on findings by Berman and Pauly (1975) in one of the Rand studies, Fullan and Pomfret (1977) conclude that "intensive in-service training (as distinct from single workshops or pre-service training) is an important strategy for implementation" (p. 37). The notion of "in-service" has been used in many different ways, and it becomes necessary to identify what is meant by it here. By in-service training we are referring to efforts to improve knowledge, skills, and attitudes of organizational members. Harris (1980) defines in-service education as "any planned program of learning opportunities afforded staff members of schools, colleges, or other educational agencies for purposes of improving the performance of the individual in already assigned positions" (p. 21). Early in-service programs tended to be curriculum-focused. Within an Organizational Development framework, a successful in-service program should incorporate task development with interpersonal skill development. In fact, studies have shown that for in-service training to be effective in the initial stages, it must combine task (substantive) issues with an interpersonal orientation (Schmuck et al., 1975; Runkel & Schmuck, 1976). In addition, for in-service education to be effective, it should be perceived as fulfilling specific needs (see, e.g., Patton & Anglin, 1982).

Time may be an element for successful in-service programs; i.e., there may be a requisite threshhold of hours. For example, Wyant (1974) studied different amounts of OD training on three measures of communication. He found that small amounts of training (i.e., between six and 22 hours) resulted in a *decline* in all three measures in comparison to a control group. When the amount of training was greater than 27 hours, the scores on all three tests were considerably higher than the scores from the control group. Wyant suggests that the implication of this is that small amounts of training make organization members more cognizant of existing problems without providing them with the skills to resolve the problems. In studying small- and medium-size organizations, Runkel and Schmuck (1976) found that approximately 160 hours (about 27 days per staff member, based on estimated six-hour days) of direct OD training and work over a year is necessary to evidence major results. Some schools were found to show positive changes after only 46 hours. The implication of these studies is that in-service training should be an ongoing phenomenon if it is to make a difference. An analysis by Joyce and Showers (1981) of over 200 studies of in-service education support the need for ongoing rather than one-shot in-service programs. They also suggest that continued monitoring is necessary to ensure that behavior changes as a result of the in-service programs are maintained.

There appears to be evidence for school level in-service programs, i.e., the faculty and administration working together (Hersh et al., 1981; Joyce, 1981). Traditionally, the principal has been left out of in-service programs (unless they were conducted under the guise of OD). In light of the emphasis on the role of the principal as an instructional leader, this is an inexcusable omission which should be remedied. The OD literature has stressed the importance of involving all levels of the organization in attempts at change, regardless of the nature of the change.

Based upon the Rand studies (e.g., Berman & McLaughlin, 1976) and the Teacher Center Study (Mertens & Yarger, 1981), Mertens (1982) isolates the following four basic components of successful in-service education:

1. Relevant in-service training. Both broad instructional objectives and teacher needs should be met.

2. Credible in-service training. To be relevant, in-service education must relate to current classroom concerns. Material should be presented in such a way that participants view their investment of time as worthwhile.
3. Accessible in-service training.
4. Collegial and supportive environment. There should be ongoing support for professional improvement.

In their meta-analysis of 59 studies on in-service education, Lawrence, Baker, Hansen, and Elzie (1974) found that the following factors were associated with in-service programs that were most successful in accomplishing their objectives:

1. They involved teachers actively in initiating, planning, and conducting the program.
2. They were designed as a collective effort of a faculty, with common purposes directed toward the general faculty development rather than the separate goals and needs of individual faculty members.
3. They were funded in ways that permitted the teachers and administrators of individual schools to sponsor them, to design activities, and to select inside and outside leadership as appropriate to the plans (programs led by school supervisors, teachers and college personnel, school district staff, or outside consultants).
4. They were scheduled at times (evenings, summers) that did not compete with but complemented other professional obligations of the participants. (Programs scheduled during work hours were considerably less successful in achieving objectives.) (Analysis by Mertens [1982] suggests just the opposite.)
5. They used diverse program patterns that seemed to emphasize teacher responsibility: self-instruction, peer study groups, college courses, one-to-one consultation.
6. They involved participants in both receptive and active roles—receiving new ideas and putting them into action.
7. They had sequences in which participants could try out new things in their classrooms or in simulations and then receive feedback from a skilled person.
8. They had leaders who were linked with a university or other center concerned with professional development.
9. They had opportunities for participants to see demonstrations of exemplary practices, and to learn the skills of observing the practices in themselves and others.
10. They did not rely on lecture presentations as the main activity.
11. They were conducted at the school site if the program emphasized affective or skill-performance objectives.
12. They provided participants with relevant printed materials such as guidelines for learning and applying new skills.

Participant planning and decision making. It has been noted that participant planning is an important element for successful in-service programs. The role of participant planning as an intervention tactic will next be considered. Participant planning (and decision making) is often cited as an important means of facilitating planned change efforts (e.g., Berman & Pauly, 1975; Klausmeier, 1982; Lawrence et al., 1974; Naumann-Etienne, 1974; Parish & Arends, 1983; Thompson, 1965).

The various reasons cited for the importance of participant planning include increased clarity about the innovation, reduced initial resistance, less development of resistance during the implementation process, and increased likelihood that effective "mutual adaptation" will occur (Parker, 1980). In addition, participant planning and decision making "may bring new insights and new sources of information to the change process" (Zaltman & Duncan, 1977, p. 265).

Participant planning and decision making by teachers may be particularly useful in facilitating educational innovations. Since teachers are usually the "consumers" of educational change efforts, securing their support is often critical to an innovation's success. Because of the loosely-coupled nature of schools, teachers have a high degree of control over what goes on in their classrooms. Any change effort involving the teacher (e.g., teacher effectiveness training) will result in an infringement on this autonomy—unless the teacher supports the innovation. The bases of this support may be normative, remunerative, coercive, or educative, although ideally it would be normative. Having teachers involved in the planning and decision making means that goals, objectives, strategies, and tactics will be more clearly understood by change participants. In addition, teachers' experiences may provide valuable data to guide the selection or revision of goals, objectives, strategies, and tactics.

Schienfeld (1979) found that participation by teachers in decision making was important for the success of an OD attempt. Berman and Pauly (1975) found that if teachers did not participate in the day-to-day decisions of the innovation, the implementation process was more difficult and the implementation effectiveness was reduced. It must be noted that participation can occur in the *planning* stage of an innovation or it can be an ongoing decision-making phenomenon (which may be characteristic of the particular school).

Participant planning and decision making may or may not be a welcomed tactic by principals. In some cases, principals may see the involvement of staff in planning and decision making as a threat (i.e., staff involvement may be seen as a means of usurping the power belonging to the principal's position). For example, Zaltman and Duncan (1977) studied a change program involving participant planning and decision making including teachers, principals, and district-level staff. Zaltman and Duncan allege that the strongest initial resistance to the program came from principals. The following is a typical response by principals involved in the program:

> *I have a real problem with this program—what you really are doing is giving teachers an input into the decision process. By doing this you are increasing their power—I now have to check things out with them before I make decisions. That really takes my authority away.* (p. 76)

In contrast, Corbett (1982) recognizes that more joint planning efforts and shared responsibilities among teachers may reduce the burden of the principal's multifaceted role. Thus, for some, rather than being perceived as a threat, participant planning and decision making would be a welcomed change. Besides the perceived threat, there may be other reasons why principals hesitate to foster staff involvement in decision making. For example, an analysis of 55 schools in New Jersey found that schools had a very low rate of staff involvement in decision making. Interviews with the principals involved who did not share decision making responsibility revealed that teacher contracts and recent legal rulings negatively affected the principals' support of participant planning and decision making (Sousa, 1982). These principals tended to believe that staff involvement in decision making was not a realistic practice, given the intense public scrutiny of schools and the accountability of professional staff. In addition, these principals said they did not feel teachers were interested in participatory decision making (which stands in contrast to results of studies by Alutto and Belasco, 1972, and Crockenberg and Clark, 1979). The principal may be an important figure in participant planning efforts. As Snyder (1983) recognizes:

> *The principal can make a fundamental difference in the performance of a school by involving staff members in school improvement planning, specific teacher and program development, and in careful assessment. Schools can produce the levels and kinds of learning that society expects as principals become increasingly more skilled at organizing teachers in various permanent and temporary arrangements to work toward specific norms.* (p. 34)

Feedback and evaluation. In terms of implementation, some studies suggest that implementation feedback and evaluation have tended to be inadequate (e.g., Charters & Pellegrin, 1972). The OD literature has long recognized the importance of adequate feedback mechanisms to stimulate discussion of problem areas, generate potential solutions, and generate motivation for change. Through adequate feedback mechanisms, ambiguities regarding the objectives and mechanisms of planned change efforts can be identified and resolved.

Providing for adequate feedback mechanisms so that change can be effectively assessed is problematic. Just as there are many different ways to conceptualize planned change, there are many diverse ways to go about gathering feedback to be evaluated. Thus, at this point, conceptual issues of the measurement of change (i.e., evaluation) will be considered.

Broadly speaking, change may be evaluated either qualitatively or quantitatively; the most common techniques are observation, surveys, and interviews. It may be examined at any of the stages (e.g., initiation, implementation) or at any time within the stages. Assessing change may be an ongoing phenomenon throughout an innovation or it may be a one-shot assessment at the end.

Measurements may pertain to "innovativeness," usually referring to *which* organizations out of a sample of organizations adopt a given innovation (e.g., Hage & Aiken, 1970). Alternatively, measurements may attempt to assess the degree of implementation of an innovation. This may be done in a number of ways. For example, teachers can be asked whether or not they are using a given innovation. However, as Papagiannis, Klees, and Bickel (1982) state, "Individuals or groups often say they are adopting or have adopted an innovation when observation shows that they have not or that they have implemented it in a form quite different than intended" (p. 259).

Ouichi (1978) distinguishes between two other types of variables that may be assessed: outputs and behaviors. Output assessments are easily quantifiable, but much more "stark" than behavior assessments. A behavior assessment, in contrast, "is more subtle, more flexible, and richer. It will be able to capture a wider range of desired activities and do so with the flexibility to take account of local differences." A behavior assessment, however, requires that good behavior is easily recognizable and is amenable to evaluation.

For example, an innovation to improve student achievement by changing teachers' performance in the classroom could be evaluated using either output or behavioral measures. An output measure would measure students' standardized test scores after the adoption of the innovation. A problem with this type of measure is that changes in test scores could be due to factors other than teachers' performances, and this would not be discernible from the data. The alternative is to measure behavior. So, in the above example, an independent observer could determine the extent to which the teachers' performances in the classroom approximated those specified in the objectives of the innovation. Gross et al. (1971) conducted a case study of an elementary school trying to implement a change in the role of the teachers. They attempted to assess both quality and quantity of the change (defined as the extent to which behavior changed) by using independent observers.

As a general rule, it is preferable to use multiple indicators of change (e.g., Jencks & Brown, 1975) and to make ongoing assessments. Unfortunately, the vast resources required to do such extensive evaluations often result in attempted "short cuts." Often this leads to questionable findings, at best.

There are many different types of evaluation techniques. Two which are noteworthy are "coaching" and "survey feedback." Coaching has been identified by Showers (1983) as important for implementation effectiveness. Showers found that if new models of teaching were to be successfully adopted in the classroom, "coaching" should be incorporated into the planned change effort. That is, teachers, administrators, or trainers should visit the teachers in the classroom a number of times following the initial training to promote the use of newly acquired skills. These coaches would evaluate how well a teacher was using the new skill and make recommendations for its better use. The concept of coaching is consistent with findings discussed elsewhere in this document that suggested that direct observation as a monitoring process is important to ensure effective implementation.

Joyce and Showers (1982) identify five functions of the coaching process:

1. *The provision of companionship*
   This allows for mutual reflection, the checking of perceptions, sharing of frustrations and successes, and the informal thinking through of mutual problems.
2. *Giving of technical feedback*
   This includes pointing out omissions, examining how materials are arranged, checking to see whether all parts of a strategy have been brought together, etc.
3. *Analysis of application: extending executive control*
   It must be determined *when* to use a given model and *what* outcomes are to be expected.
4. *Adaptation to students*
   The students will need to make adjustments to a new model of teaching. Coaches can help teachers interpret students' responses.
5. *Facilitation*
   Successful use of a new method requires time. Much support is needed during the initial stages.

Coaching can be a useful feedback mechanism, particularly when used within a developmental framework. It can serve to facilitate the success of change initiatives as well as, in some cases, to nurture organizational self-renewal efforts.

Another useful device for planned change efforts is survey feedback methods. In organization development, the basic model involves collection of data through surveys, feedback of data, and action planning based on the data. Surveys may focus on behaviors, attitudes, perceptions, and so on. Climatic improvement is one of many possible items which could be assessed. It must be noted, however, that perceptions of change or attitudes toward change do not necessarily reflect actual change. For example, a teacher may verbally support a change but not use it in actual practice.

Through survey feedback it is possible to monitor perceptions of progress, i.e., it can be determined to what extent goals and objectives are perceived as being met. When combined with other methods (such as coaching), survey feedback techniques are particularly useful. Through the survey feedback process, participants in the change effort receive feedback about the progress of the change in, for example, their school. This feedback may act as an incentive to maintain and further the change.

Although there are many strategies and tactical devices, the choice of particular ones will depend on the given context. What is appropriate in one school may not be appropriate in another. Furthermore, what is appropriate in a given locale at one point in time may not be appropriate in that same locale at a different point in time. Thus, *before* a change effort is undertaken in a given context, a thorough assessment must be made of that context. Furthermore, *after* the change effort is underway, there must be ongoing assessments so that goals, objectives, strategies, and tactics can be altered as necessary.

Obstacles to Planned Change

Before summarizing this chapter, it is useful to note the various obstacles which have been identified as impeding planned change efforts. Gross (1977) analyzed a number of longitudinal studies of planned change and identified eight obstacles to success:

1. *Failure to diagnose the problem adequately*
   Diagnosis was often overly simplistic and superficial. Innovations tended to be inappropriate for the underlying problems.
2. *Failure to anticipate or resolve implementation problems*
   Included here was the failure to anticipate and/or adequately resolve staff opposition to the innovation, failure to recognize that teachers might need new skills or attitudes, lack of adequate resources, lack of support by the school's administration, and misunderstandings between funders (often government agencies) and school or school district personnel.
3. *An ad hoc approach to education innovation*
   Innovations were often introduced piecemeal with little attention given to their possible effect on other parts of a school system.
4. *Uncritical acceptance of existing innovations*
   Resources were often allocated for certain innovations simply because they "sounded good" or because some other school appeared to have incorporated them successfully. Little or no attention was given to the unique social and professional context which may have acted to facilitate or impede change efforts.
5. *Absence of monitoring and feedback mechanisms*
   Often there were no means of identifying the problems and obstacles to the change effort as they emerged.
6. *Lack of teacher and community involvement*
   Innovations tended to be introduced without adequate consultation with teachers and community.

7. *Inadequate planning*
   Appropriate target dates were not identified or, if they were, the means to achieve them were not adequately elaborated.
8. *Absence of leadership*
   Administrators involved in the change efforts were not committed to the change or the authorities appointing individuals to implement change did not consider leadership qualities in the appointees.

It must be noted that had the above obstacles been identified prior to a change effort (through the preliminary assessment of the given context), the planned change effort could have been stayed, could have been stayed until remedial action had been taken, or could have included within it particular strategies and tactics intended to overcome or circumvent the identified obstacles.

Summary

Planned change in the school setting is a highly complex and dynamic process. Practitioners who seek to implement meaningful changes in their schools must be knowledgeable about both the change process and the structure of school organizations. This is fundamental to successful planned change. Below we have identified additional conditions which tend to be associated with successful planned change efforts:

- positive school climate
- district-level commitment to the change effort
- effective leadership from the principal
- active involvement by the principal in the change effort
- participant decision making and planning
- effective in-service training
- a clear understanding of change goals, strategies, and tactics by those involved in the change effort
- a clear understanding of change goals, strategies, and tactics by the community
- community support for the change
- flexibility built in to the goals, strategies, and tactics so that the change can be adapted to the particular context
- change process focused at the level of the individual school

The importance of these conditions becomes clearer when they are considered within the framework of the change process. Hence, let us review some of the essential features of planned organizational change.

The initial stage of a planned change effort involves the recognition of a problem and an assessment of need. Within this stage are a number of salient dimensions. The first of these concerns the identification of the problem. A thorough diagnosis must be made to identify specific problems, assess how they are idiosyncratically embedded within a given context, and consider whether the identified problems are really manifestations of other, less visible problems (i.e., the "iceberg" phenomenon). As has been discussed, research findings suggest that the individual school is the logical unit of analysis for planned change efforts. This means that the role of the central office staff is to *support* change efforts rather than *prescribe* change efforts for individual schools. The schools must assess what and how problems are manifested in their particular milieu.

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The individual school's potential for change must be evaluated. This would include an analysis of the existing school climate, and more specifically, the climate for change. Also included would be an assessment of support for change from administrators, staff, and the community.

Once the problem has been assessed, the initiation stage begins. Initiation is the decision to try to improve the identified problem area. Preliminary goals and objectives are decided upon. An attempt should be made to identify all potential obstacles to change. As previously mentioned, identified obstacles go hand-in-hand with the choice of strategies and tactics. Examples of potential obstacles include staff opposition to the change, lack of adequate resources, lack of support by administrators or by the community, a "reorientation" change, misunderstandings about goals and objectives and so on. The specific strategies and tactics should be selected on the basis of potential obstacles identified. For example, participant planning is a tactic to help clarify the change effort for those who will be involved in it and reduce resistance to change by groups within the organization. It is important to note, however, that the planned change (i.e., goals, objectives, strategies, and tactics) must be flexible enough to encompass latent (unplanned) changes. Since change is a systemic phenomenon (i.e., since changes in one part of a system result in changes in other parts of the system), a planned change effort includes both planned and unplanned changes. The planned change effort must be able to allow for revisions and adjustments.

Adoption is the first step in the implementation stage. It is the point at which an innovation is initiated. Implementation is the adoption of the innovation for use in the specific context. Implementation is an ongoing process of "mutual adaptation" in which the change and the context undergo continual adjustment. During this period, ongoing evaluations (e.g., survey feedback, coaching) are useful mechanisms for assessing the extent to which the planned change is meeting goals and objectives. Goals and objectives, as well as strategies and tactics, may have to be adjusted to accommodate the dynamics of change. Participant planning and decision making appear to be useful tactics for facilitating adjustments. However, whatever strategies and tactics are utilized, they should include the active involvement of the principal and support from the central office staff.

The final stage in the change effort involves the institutionalization of the innovation. This is when behaviors and/or attitudes become congruent with the goals and objectives of the change effort. The institutionalization of change evolves over a long period of time. Thus, dramatic or "reorientation" changes cannot be expected to occur in short time spans. Nor can "reorientation" changes be expected to occur without the commitment of substantial resources. Often goals and objectives of change efforts are unrealistic in that they fail to allow adequate time and resources for desired changes to be accomplished.

If one considers what it takes for innovations to become successfully institutionalized, it is apparent that there is no tidy prescription for implementing a change effort to ensure its success. Rather, what is required is a recognition that innovation attempts evolve incrementally. That is, the change effort is continually undergoing revision and adaptation. To monitor and direct this mutual adaptation, it is necessary to understand the dynamic interface between the change process and the change context. In this way, potential obstacles can be anticipated; appropriate goals, objectives, strategies, and tactics can be selected, evaluated, and, when necessary, revised to better suit the idiosyncratic conditions of a specific context. Thus, successful practitioners of planned change efforts must be adept at understanding planned change as a complex and dynamic process occurring within a myriad of interrelated contextual factors.

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SECTION V: TOWARD MORE EFFECTIVE SCHOOLS

by Joseph J. Raiche

> *If we can only understand schools in our minds, we might be more successful in improving them.*
> *—John I. Goodlad*

Goodlad's (1983) assertion is considerably more profound than a cursory reading of it might indicate. The message, put quite simply, is that improving schools requires intimate and comprehensive knowledge of schools. Just as we would be extremely wary of a first-year medical student undertaking major surgery on a loved one, we should be equally as skeptical of the educational practitioner who, largely ignorant of the dynamics and intricacies of school organizations, seeks to mastermind an attempt to improve one of our schools. The potential for miscalculation in both cases is far too great. It is imperative that designers of school improvements understand the incredible complexity of the organization they seek to change.

We believe that the growing body of research on the schooling process, while limited in certain respects, does provide educators and others with a solid informational base upon which to make intelligent decisions about improvements in their respective schools. In Section V we hope to further enhance such decision making by presenting a synthesis and interpretation of the major research findings discussed in previous sections. In this section we will also describe a method for defining and assessing "school effectiveness."

Interpreting the Research on Effective Schools

Sections II and III were organized around four categories of variables which influence the instructional and learning processes in the school setting. These categories included contextual variables, intrapersonal variables, interpersonal variables, and methodological variables. In the following paragraphs we will attempt to specify which variables within each category are most vital to effective schooling.

Contextual Variables, Instruction, and Student Outcomes

Contextual variables are those factors and processes associated with the school setting that combine to provide an "arena" within which classroom instruction and student development take place. Several contextual variables were discussed in Sections II and III. These included student socio-economic status, parental commitment to educational goals, school monetary resources, class size, student density in a school building, instructional leadership within a school, and school climate. In essence, these variables operate together to produce physical and social structures that shape the educational process in a given school.

The physical structure of a particular school would include such things as the school building, the grounds surrounding the school, and all of the materials and objects associated with the school's day-to-day activities. The social structure of a school is comprised of values, goals, norms, expectations, policies, procedures, attitudes, behaviors, and relationships among school participants. Perhaps the least obvious of all the variables that affect learning, contextual variables are very likely the most critical to school effectiveness because they influence almost everything else that goes on in the school setting.

It is clear, however, that some contextual variables are more influential in the school setting than others. Recent research consistently shows that the social structural characteristics of schools are considerably more important to the educational process than are their physical attributes. Beyond ensuring that teachers and students are safe, reasonably comfortable, and have access to adequate instructional facilities, the aesthetic qualities of a school building do not appear to play a significant role in shaping learning outcomes. What does appear to be crucial to school effectiveness is whether or not a given school has a consistent value system that emphasizes and reinforces instructional excellence and high student achievement. Three key indicators of desirable social structure in a school are:

- a clear set of educationally-related values, goals, and expectations
- competent administrative and instructional leadership
- strong parental commitment to educational goals

It would appear, then, that when school values, goals, and expectations; the leadership of key school functionaries; and parental commitment to student achievement in the local community support the educational process, student learning and development will be maximized. Correspondingly, to the extent that these variables are incongruent with student achievement, such achievement will be diminished. Inconsistencies among these variables will also have a negative impact on student outcomes.

Intrapersonal Variables, Instruction, and Student Outcomes

Intrapersonal variables refer simply to the personal characteristics of teachers and students. There is a long tradition of research that has attempted to delineate exactly which teacher and student personal characteristics affect achievement in the school setting. Sections II and III examined several variables of this sort. These included teacher verbal skills, teacher training and experience, teacher social sensitivity, teacher cognitive style, teacher locus of control, student brain development, student locus of control, student attribution of success and failure, student motivation, and student academic self-concept. Our review of recent research did not consistently indicate any of these variables to be critical determinants of high achievement. The most important and widely acknowledged intrapersonal variables seem to be those relating to teacher personal skills and qualifications. Still, none of these appear to be worthy of special mention at this point.

Interpersonal Variables, Instruction, and Student Outcomes

The primary focus of interpersonal variables in the school setting is on the manner in which teachers and students interact. These interactions take many forms and are influenced by a variety of factors, including the contextual and intrapersonal variables discussed above. Sections II and III examined several interpersonal variables. Teacher-centered variables included such things as teacher attitudes, expectations, and behaviors, and classroom climate. Student-centered variables included ability grouping of students and type of learning environment emphasized (i.e., cooperative versus competitive versus individualistic). Recent research is consistent in showing that all of these variables have a considerable impact on the educational process. Hence, the following interpersonal variables appear to significantly influence student outcomes in the school setting:

- teacher attitudes and behaviors toward and expectations of students
- classroom climate
- the extent to which students are grouped by ability
- type of learning environment emphasized (i.e., cooperative versus competitive versus individualistic)

Teacher effects. It is very likely that classroom teachers represent the most direct and decisive force in the school setting for determining student outcomes. Moreover, it appears that the personal attributes of teachers are much less important for student achievement than are their attitudes and behaviors toward and expectations of students, particularly younger students. The things teachers say and do, and the atmosphere they create in the classroom, have a tremendous impact on learners. Teachers have the capacity to bring the best and the worst out of the students with whom they interact on a regular basis. It is clear that teachers play a significant role in shaping not only students' cognitive development, but their psychological development as well.

Despite the apparent centrality of teacher "effects" on student development, it is important to recognize that classroom instructional practices are, in large measure, reflective of the value system which pervades the school setting in which they are being utilized. Classroom instruction does not take place in a vacuum. If teaching practices at a given school site are generally contrary to desirable student outcomes, it is very likely that the value system of that school fosters, and may even reinforce, ineffective classroom instruction. Generally speaking, it would be fair to say that teachers are only as effective as the school environment they operate within allows them to be. It is virtually impossible for a teacher to be effective in a school that is not organized to maximize student outcomes. An unusually talented, well-trained, and highly motivated instructor may be able to teach effectively for a limited period of time in an inadequately organized school, but in the long run this individual's special capacities will most certainly be diminished to a level of mediocrity or worse.

Peer effects. The nature of interactions between students and their peers have also been found to significantly influence their academic and developmental outcomes. Research reported over the past decade has consistently shown that educational outcomes for most students are enhanced when they are heterogeneously grouped. Unfortunately, the vast majority of school decision makers seem content to ignore the research on ability grouping and continue to support this apparently counterproductive practice. This pattern seems particularly suspect in light of recent documentation of the general unreliability of the methods and criteria used to place students in one group or another (e.g., Winn & Wilson, 1983).

The positive effects of heterogeneous grouping are intensified when teachers facilitate and reinforce cooperative pursuit of learning objectives among their students. Low-ability students seem to be the prime beneficiaries of such interactions. Although, some recent studies have found that high-ability students also operate more effectively when they cooperate within diverse groupings. These findings militate against the extensive use of homogenous ability grouping, particularly when this practice is combined with a competitive learning format.

Methodological Variables, Instruction, and Student Outcomes

Methodological variables are the strategies and techniques utilized within schools and classrooms to promote and reinforce desired student outcomes.

Methods and techniques discussed in Sections II and III include direct instruction, programmed instruction, computer-assisted instruction, use of advance organizers, teacher questioning, time-on-task, mastery learning, open education, and team teaching. Before we continue further, it is important to briefly make a couple of points. First, there is considerable overlap among many of the strategies listed above. This might be one explanation for the fact that all of these methods have some research support. Second, it should be made perfectly clear that *none* of the strategies listed above, by itself, is capable of transforming an educationally ineffective school or classroom into one that is effective. Even the strategies with the strongest research support require a suitable environment (i.e., positive school climate) and thoughtful implementation before they can be more than minimally effective. Of the instructional methods examined, two appear to have the most consistently positive influence on student achievement. These are:

- direct instruction
- engaged time-on-task

Most types of students seem to benefit from teacher-based instruction that is relatively structured, systematic, rigorous, goal-directed, and frequently monitored to evaluate whether the desired level of progress is being made. This instructional strategy is particularly effective when teachers are able to adapt it to the needs of their students. Such adaptation appears critical in light of recent research which suggests that most elementary students function best when the instructional format is highly structured, whereas, high school-level students appear to respond more favorably to a less restrictive instructional format. Research has also shown that low-ability students perform more effectively in a structured setting, while high-ability learners do better when the instructional format is flexible. Regardless of the format, however, it is clear that frequent, constructive feedback is critical to effective instruction.

The Nature of Effective Schools

Defining "School Effectiveness"

The first step in defining "school effectiveness" is to establish precisely what is meant by "effective." We must clarify what it is "effective" schools do that differentiates them from "ineffective" schools. At the present time there is little consensus as to what constitutes an "effective school." Much of this ambiguity stems from the fact that people, e.g., researchers, school practitioners, parents, etc., have widely divergent expectations of schools, or at least place varying levels of emphasis on expectancies they have in common.

Still, it is probably safe to say that most people would agree schools should promote some degree of achievement in each of the following broad areas:

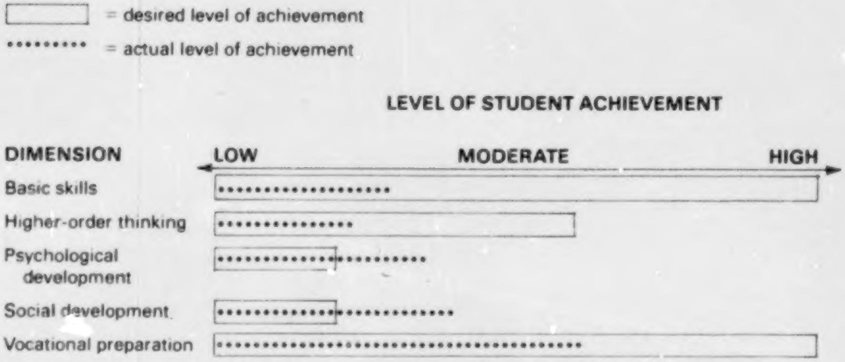
- basic skills
- higher order thinking and reasoning
- psychological development
- development of social skills
- vocational preparation

Given this likelihood, it may be that "school effectiveness" is most profitably conceived as a multi-dimensional continuum. There would appear to be great value in viewing "school effectiveness" in multi-dimensional terms. For one thing, schools would no longer have to be thought of as either "effective" or "ineffective." A given school could be very facilitative of student achievement in basic skills, for example, but largely unsuccessful in promoting student achievement in the other four achievement dimensions. If this pattern, once recognized, was satisfactory to school officials, teachers, parents, taxpayers, and students, then the school could legitimately be labeled "effective."

This approach could also be of value to those who wish to systematically assess school effectiveness. The model could be used to produce a composite measure of school effectiveness in which the various achievement dimensions listed above would be weighted to reflect a given school's achievement priorities. So let us imagine that we have a hypothetical School "A." Representatives from School "A" have decided to assess their "school effectiveness." For purposes of discussion, let us suppose a pre-assessment investigation revealed that School "A" and its surrounding community placed a strong emphasis on student achievement in basic skills and vocational preparation, moderate emphasis on higher-order thinking and reasoning, and low emphasis on psychological and social development. Based on the assessment results illustrated in Figure 4, it is clear that students in School "A" are not achieving at the desired level in basic skills, higher-order thinking and reasoning, or vocational development.

Figure 4

SCHOOL EFFECTIVENESS CONTINUUM: SCHOOL "A"



Student achievement on all three dimensions is considerably below expectations. It would therefore appear that School "A" is ineffective with respect to achievement in these areas. On the other hand, desired levels of achievement are more than being met in the psychological and social development areas. If we define "school effectiveness" as the ability of a school to facilitate student achievement at the desired level in the skill dimensions it seeks to emphasize, then our hypothetical School "A," considered overall, would likely be assessed as largely ineffective.

The Characteristics of Effective Schools

So, at least conceptually, we have defined what an effective school is. Put simply, an effective school is one that facilitates the desired level of student achievement in the skill areas it sees as being important. For purposes of delineating the specific research-based characteristics of effective schools, we will interpret this situational definition broadly as referring to a school that is organized in a manner which facilitates high student achievement in basic skills, divergent and critical thinking, and psycho-social development. Our comprehensive review of current research on effective schools suggests the following school characteristics to be facilitative of these student outcomes:

- a clearly defined set of goals and expectations related to school administration, classroom instruction, and student achievement
- school and classroom climates which support and reinforce the pursuit of these goals and expectations
- school leadership which constantly monitors and encourages progress toward the stated goals and expectations
- parental commitment to the stated goals and expectations
- positive teacher-student interactions
- emphasis on heterogeneous grouping of students
- emphasis on cooperative group learning
- teacher-centered instruction that is systematic and rigorous, yet sensitive to changing student needs
- ongoing instruction-oriented feedback regarding student progress

Figure 5 (see page 95) entitled, "A Social Systems Model of Student Development in the School Setting," illustrates a conception of how the nine school variables work together to influence student achievement. As noted earlier, the instructional process is probably the most powerful and direct influence on student outcomes in school. However, it is important to recognize that school social structure affects student achievement both directly and through its considerable influence on instruction.

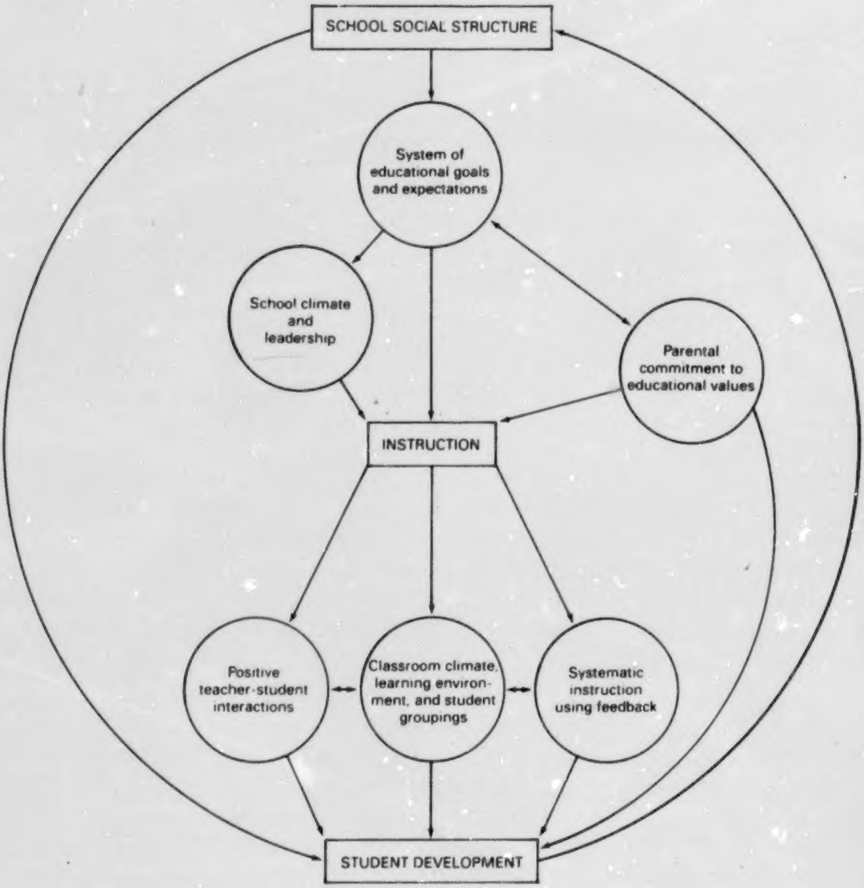
Key Indicators of Effective Schooling

We believe the list of characteristics of effective schools reflects what is currently known about the schooling process. Unfortunately this list of nine characteristics, while interesting to the practitioner, does not give her/him information specific enough to initiate action. Therefore, to assist school professionals who wish to make improvements in their respective schools, key indicators for each of the nine characteristics of effective schools will be delineated. These indicators are by no means exhaustive. They should, however, provide educators with a crude tool with which to assess the overall effectiveness of their particular school and a basis for making specific improvements where appropriate.

1. *A clearly defined set of goals and expectations is developed related to school administration, classroom instruction, and student achievement.*
    - School goals and performance expectations for administrators, teachers, and students are clearly stated in written form.
    - High student achievement is the foremost priority of the school. "High student achievement" is defined precisely. The school is organized around this goal.
    - School policies and procedures are designed to promote student achievement.
    - Administrators, teachers, and students are intimately aware and supportive of the school's priorities and performance expectations.
    - Evaluation is an important part of the school structure. School leaders

Figure 5

A SOCIAL SYSTEMS MODEL OF STUDENT DEVELOPMENT IN THE SCHOOL SETTING


SCHOOL SOCIAL STRUCTURE
System of educational goals and expectations
School climate and leadership
Parental commitment to educational values
INSTRUCTION
Positive teacher-student interactions
Classroom climate, learning environment, and student groupings
Systematic instruction using feedback
STUDENT DEVELOPMENT

constantly assess the effectiveness of the organization, making thoughtful changes and refinements as the need arises.

2. *School and classroom climates support and reinforce the pursuit of the organization's goals and expectations.*
    - School administrators and teachers work well together in the decision-making process.
    - School administrators and teachers have high expectations for student achievement. Students are well aware of and understand these expectations.
    - Students expect to master their academic work load.
    - School administrators and teachers do everything possible to facilitate high student achievement.
    - School administrators and teachers have high expectations for student behavior. Students are well aware of and understand these expectations. Students expect to be punished for breaking rules.
    - School administrators and teachers consistently enforce school rules and procedures. Enforcement of rules is swift and appropriately severe. Student deviant behavior is minimal. The school is a safe and secure place to learn and work.
    - Student engaged time-on-task is maximized. School activities are organized to maximize learning time. Instruction is rarely interrupted.
    - School personnel approach their jobs with enthusiasm. Students show enthusiasm for learning.
    - Teachers make a special effort to let students know they really care.
    - School personnel, students, and the community all take pride in their school.
3. *School leadership constantly monitors and encourages progress toward the organization's stated goals and objectives.*
    - The school has specified procedures and criteria for evaluating classroom instructors and students. Multiple assessment methods are used to monitor both.
    - School leaders are knowledgeable about the dynamic structure of their organization and the complexities of the improvement process.
    - The school principal is trained to effectively evaluate instruction. Teachers are aware of and respect the principal's competence in this area.
    - The school principal observes classroom instruction on a regular basis. He/she meets with teachers to discuss classroom practices frequently.
    - Teachers in the school receive ongoing, constructive feedback regarding their effectiveness in the classroom. Teachers are rewarded for excellence in teaching.
    - The school principal assists and supports teachers in matters of student discipline.
    - The school principal facilitates ongoing staff development.
    - Student assessment is a regular feature of the school year. Testing results are used as one source of information to aid the planning process for school improvement.

4. *Parents are committed to the school's stated goals and expectations.*
    - Parents are aware of, understand, and support the basic objectives of the school.
    - Parents believe they have an important role in the school's accomplishment of its objectives.
    - Parents contribute significantly to their children's daily pursuit of educational objectives.
    - Parents are frequently advised of the progress their children are making in school.
    - Parents have a wide range of options for becoming involved in schooling.
5. *Teacher-student interactions are positive.*
    - Classroom teachers understand the tremendous impact their attitudes, behaviors, and expectations can have on students. They use this power as a resource to promote high student achievement.
    - Classroom teachers expect high achievement from all of their students.
    - Classroom teachers try to ensure that all of their students have about the same opportunity to participate in classroom learning activities.
    - Classroom teachers treat all of their students with courtesy and respect, regardless of their race, religion, sex, economic status, or achievement level.
    - Students believe that their teachers really care about them as people and are working for their best interests.
6. *There is an emphasis on heterogeneous grouping of students.*
    - School administrators and teachers understand that students of all ages are extremely sensitive to even the most subtle attempts to stratify them on the basis of ability. Stratification of this sort is used on a very limited basis and only then with considerable forethought.
    - Teachers emphasize whole group instruction.
    - Student groupings are heterogeneous for the most part.
    - When there is ability grouping, teachers make every effort to avoid underplacement of students. They also review and adjust groups often, as dictated by changes in student achievement levels.
7. *There is an emphasis on cooperative group learning.*
    - School administrators and teachers are aware of and understand the attributes and weaknesses of cooperative versus competitive versus individualistic learning formats in the classroom setting.
    - Classroom teachers emphasize cooperative group learning, but also use competitive and individualistic learning formats.
    - Cooperative groups contain low-, medium-, and high-ability students.
    - Students support each other's efforts to achieve.
    - Very few students feel alienated from what is happening in school.
8. *Teacher-centered instruction is sytematic and rigorous, yet sensitive to changing student needs.*
    - The majority of time students spend in the classroom setting is time in which students are engaged in activities related to intended learning outcomes.

- Teachers establish and maintain a brisk pace for instruction.
- Students are challenged by classroom instructional activities.
- Teachers systematically monitor and record student achievement. Students are regularly advised of their progress.
- Teachers choose instructional activities which promote high success and achievement levels for all students.
- Teachers assign homework frequently and purposefully. Teachers make sure parents are aware that homework is important and give tips on how to help their children with their studies.
- Students from all socio-economic backgrounds have high achievement.
- Teachers constantly adapt their instruction to the needs of students.

9. *Instruction-oriented feedback regarding student progress is ongoing.*
   - Teachers constantly monitor student performance and provide constructive feedback.
   - Teachers reward student achievement and admonish students for inadequate performances.
   - Teachers maintain accurate written records of student progress.
   - Students are promptly advised of examination results.
   - Teachers make themselves readily available to students who have difficulty with classroom assignments.
   - Teachers advise parents of student achievement on a regular basis.

Planning and Implementing School Improvements: Research-Based Recommendations for Successful Planned Change

Identifying the principal characteristics of effective schools is certainly a positive step toward making successful changes in these organizations. Yet, it should be clear from our discussion of planned change (Section IV) that recognizing deficiency is only a preliminary step in the complex process of implementing effective change in the school setting. Much more important than the recognition of deficiencies in the learning environment of a given school is what happens thereafter. Most planned changes fail for two basic reasons: 1) participants in the change effort often have a very limited understanding of the complexities of school organizations and 2) they know even less about the change process itself.

Appropriately, we will conclude our analysis of school improvement with some specific comments relative to the planned change process. Based on the recent research on planned change, we feel reasonably comfortable making the following recommendations regarding the implementation of planned change in educational organizations:

1. Planned change should be a school-level phenomenon. Critical variables are at the school level.
2. A preliminary assessment of the school should be conducted to determine whether a particular change effort is possible (i.e., schools with poor climate, an ineffective principal, disciplinary problems, etc., may not be conducive to a given planned change attempt. Remedial changes, such as climate improvement, may be required before a particular change is implemented.) The

preliminary assessment also acts as a data base upon which particular goals, objectives, strategies, and tactics can be based so as to best fit the idiosyncratic needs of the particular school.

3. The school principal must support the planned change and be *actively involved* in its implementation (e.g., participating in in-service activities, etc.). A "good" principal can do much for getting the support and involvement of teachers and in securing resources and support from district, community, and other sources.
4. The support of the superintendent and central office staff is facilitative of change efforts. If a change effort involves more than one school in a district, the central office staff must participate in its implementation (e.g., as part of in-service programs).
5. Involving teachers in the planning of a change and in the ongoing decision making appears often to be a useful change mechanism. Since teachers are usually the "consumers" of educational innovations, securing their support is essential. Because of the loosely-coupled nature of schools, teachers have a high degree of control over what goes on in their classrooms. Any change effort involving the teacher (e.g., teacher effectiveness training) will result in an infringement of this autonomy—unless the teacher fully supports the innovation (e.g., innovations require evaluation, often direct observation in the classroom by independent evaluators or perhaps "coaches"). Having teachers involved also allows the utilization of their insights, particularly in the planning stage. This helps reduce initial resistance to the innovation and diminish resistance that might arise in the course of implementation (i.e., problems that arise tend to be negotiated). In addition, the involvement of teachers in planning and ongoing decision making helps ensure that goals, objectives, strategies, and tactics are clearly understood by key participants in the change process.
6. In-service training is sometimes a change facilitator. However, in situations in which in-service training is appropriate, it appears certain conditions must be met. For example, a substantial number of hours are required, and the in-service program should be structured so as to combine substantive and general issues.
7. Adequate feedback mechanisms are essential. Participants in a planned change effort should be able to evidence some type of short-term improvement, or "changed" behaviors, attitudes, skills, etc., are likely to revert back to their "pre-change" style. (This is particularly true when the change involves alterations in teaching, since teachers tend to get little feedback as to how effective they are.) It appears that when behavioral changes are the objectives, direct observation techniques should be used for evaluation (as one type of measure). Furthermore, more than one type of measure should be used and evaluation should be ongoing rather than a one-shot phenomenon.
8. The support of the community (e.g., parents, key groups, teachers, unions, etc.) must be secured. Community participation in and commitment to a proposed change is critical to its successful implementation.

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